

Virtual Forum Theater: Creating and sharing drama to resolve conflicts

A dissertation

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Table of Contents

Acknowledgments.....	2
Chapter 1 - Introduction.....	12
1.1 Virtual Forum Theater: Toolset, Process, and Performance.....	12
1.2 Why I developed the VFT Toolset.....	15
1.3 Research on VFT	18
1.4 Organization of the Thesis	19
1.5 Personal Inspiration	21
Chapter 2 - Existing Theories and Research.....	24
2.1 Introduction.....	24
2.2 VFT Conceptual Framework	25
2.2.1 Constructivism and Constructionism.....	28
2.2.2 Brecht's Epic Theater	29
2.2.3 Boal's Theater of the Oppressed.....	32
2.2.4 Connections between Brecht, Boal, Piaget, Papert and Freire	37
2.2.5 Socio-Constructivism.....	39
2.2.6 Drama-in-Education.....	41
2.2.7 Argumentation Theory.....	43
2.2.8 Using Brecht's and Boal's Work with Children	47
2.3 Existing Drama and Expressing Tools.....	49
2.3.1 Collaborative Environments	49
2.3.2 Digital Drama.....	52
2.3.3 Theater of the Oppressed and Theater-in-Education	56
2.3.4. Online Role-Playing.....	58
2.3.5 Positive Youth Development and Positive Technology Development.....	60
Chapter 3 <i>VFT</i> : Process, Toolset and Digital Performance	64
3.1 Introduction.....	64
3.2 The Form of a VFT Play.....	64
3.3. The VFT Toolset.....	66
3.4 Design Principles, Guidelines and "Affordances"	72
3.5 Intervention in VFT	73
3.6 An Intervention Example.....	75
3.7 Brecht and VFT.....	78
3.8 VFT is a Different Form of Forum Theater	80
3.9 Ways that VFT can be Used	83
Chapter 4 - Developing <i>VFT</i> with Java.....	85
4.1 Introduction.....	85
4.2 Requirements	85
4.3 Why Java.....	87
4.4 Planning Phase	88
4.5 Dramatic Faces: A Java-based Environment	91
4.5.1 Initial Architecture	93
4.5.2 The Underlying Mathematics	99
4.5.3 How to Add Face Elements	101
4.5.4 Emotions and Dramatic Faces	101

4.5.5 Evolution of Dramatic Faces	103
4.6 The GUI Storyboard	105
4.6.1 Class Structure	111
4.7 Conclusion	112
Chapter 5 – Research Methods	114
5.1 Introduction.....	114
5.2 Background.....	114
5.3 DBR and the VFT’s Dramatic Techniques	117
5.4 Experiments	119
5.4.1 Sampling, Settings, and Time	120
5.4.2 Data Collection	122
5.4.3 Data Analysis and Coding Strategies.....	124
5.4.4 Validity and Reliability.....	124
5.4.5 Dramatic Exercises	124
5.5 Conclusion	129
Chapter 6 – Pilot Study at Somerville Youth Community Center.....	130
6.1 Introduction.....	130
6.2 The Experiment.....	130
6.2.1 Participants, Settings, and Time.....	131
6.2.2 Relationship Established with Participants.....	132
6.2.3 Expectations	133
6.2.4 Data Collection	134
6.2.5 Data Analysis and Coding Strategies.....	135
6.3 Activities	139
Chapter 7 - Colégio Estadual Landolfo Alves	144
7.1 Introduction.....	144
7.2 The Experiment.....	145
7.2.1 Sampling, Settings and Time	145
7.2.2. Relationship with Participants	148
7.2.3 Expectations	149
7.2.4 Data Collection	149
7.2.5 Data Analysis and Coding Strategies.....	150
7.2.6 Validity and Reliability.....	152
7.3 Activities	152
7.4 Results of the Work and its Impact.....	155
7.4.1 Survey Results	156
7.4.2 Their Digital Play.....	161
7.5 Conclusion	163
Chapter 8 - Rotary, Kabum, and Aplicação.....	164
8.1 Introduction.....	164
8.2 Sampling, Settings, Time.....	165
8.2.1 Kabum School of Arts and Technology.....	165
8.2.2 Rotary School.....	169
8.2.3 Aplicação Anisio Teixeira	172
8.2.4 Relationship Established with Participants.....	174
8.2.5 Expectations	175

8.2.6 Data Collection	177
8.2.7 Data Analysis and Coding Strategies.....	182
8.2.8 Validity and Reliability.....	186
8.3 Virtual Plays and Activities Afforded by VFT	187
8.3.1 Rotary’s Dramatic Production	188
8.3.2 Rotary’s Activities and Use of <i>VFT</i>	189
8.3.3 Kabum’ s Dramatic Production	199
8.3.4 Kabum’s Activities and Use of <i>VFT</i>	201
8.3.5 Aplicação’s Activities and Use of <i>VFT</i>	209
8.3.6 Cross-group Interactions.....	212
8.4 The Result of the Work and its Impact	232
8.4.1 Adroaldo’s Journey.....	232
8.4.2 Tadeu’s Journey	238
8.4.3 Lucia’s Journey.....	243
8.5 Results in Expressive Fluency	249
8.6 Acceptance and Usefulness of VFT by Youth.....	252
8.7 Results on Conflict Resolution	260
8.7.1 Rotary School.....	261
8.7.2 Kabum.....	263
8.7.3 Aplicação	264
8.8 Conclusion	266
9. Conclusion	268
9.1 Learning Goals.....	268
9.2 Process, Toolset, and Product	269
9.3 The importance of VFT	271
9.4 Fun and Engagement.....	271
9.5 Argumentation Style	273
9.6 Expressive Fluency	274
9.7 Dramatic Expression.....	276
9.8 Social Awareness.....	278
9.9 Facilitator’s Role.....	280
9.10 An Object to “enact with” and “argue about”	281
9.11 Relationship to Design-Based Research	282
9.12 The Virtual Joker	283
9.13 Lessons Learned.....	286
9.14 Open Questions	286
9.15 Future Work	288
References.....	292
Appendix 1	Research Consent Forms..... 308
Appendix 2	VFT’s Scripts
Appendix 3	Instruments of Data Collection
Appendix 4	Important Transcripts of the 3 rd study
Appendix 5	VFT toolset’s guidelines
Appendix 6	IRB Consent Forms in English

Figure 2.1: *VFT* Theoretical Framework 26

Figure 2.2: VFT's universe.....	27
Figure 2.3: Four Cs of PYD & PTD on VFT's design features and activities.....	63
Figure 3.3: An Intervention Frame	75
Figure 4.1: Initial <i>VFT</i> Requirements.....	87
Figure 4.2: 1 st mockup of VFT in JavaScript.....	89
Figure 4.3: 1 st VFT GUI in Java.....	91
Figure 4.4: First class design architecture of <i>Dramatic Faces</i>	95
Figure 4.5: 2 nd class architecture of DF	96
Figure 4.6: 3rd class architecture of DF	98
Figure 4.7: SVG Dramatic Faces.....	103
Figure 4.8: Final <i>DF</i> Interface.....	105
Figure 4.9: Final version of Graphical User Interface	106
Figure 4.10: Real One called from <i>VFT toolset</i>	106
Figure 4.11: Chat Room called from <i>VFT toolset</i>	107
Figure 4.12: Drawing Tool opens when button is clicked	107
Figure 4.13: Guideline Button for Play Structure	108
Figure 4.14: Dramatic Faces called from <i>VFT toolset</i>	109
Figure 4.15: Pop-up window displaying server message.....	109
Figure 4.16: Real One playing SMIL file.....	110
Figure 4.17: <i>VFT toolset</i> Class diagram.....	111
Figure 4.18: VFT Server UML diagram.....	112
Figure 4.19: Final <i>VFT toolset</i> configuration	112
Figure 6.1: Creating Dramatic Faces.....	132
Figure 6.2: Practicing lines before recording.....	142
Figure 7.1: Script writing.....	147
Figure 7.2: Dramatic Faces at Landulfo Alves.....	153
Figure 7.3: Rehearsal of student bus pass scene	154
Figure 7.4: Screen-capture of VFT toolset at Landulfo Alves.....	155
Table 8.1: Intersections between VFT's learning goals and PTD's C's	181
Table 8.2: Substantive Codes	183
Figure 8.1: Interrelation of Pattern Codes	184
Table 8.3: VFT toolset's Design Features versus VFT's Learning Goals.....	185
Table 8.4: VFT's Process versus Learning Goals	185
Figure 8.2: Acting out stories of injustice	190
Excerpt 8.1: Rotary's 9 th session – recording character's line	192
Figure 8.3: Choosing images for the Gremio scene	194
Excerpt 8.2: Rotary's 11 th session – synchronizing images and sound	195
Figure 8.4: Rotary's intervention frames for Classroom scene.....	196
Figure 8.5: Recording characters' lines.....	197
Excerpt 8.3: Rotary's 11 th session – group discussion	199
Excerpt 8.4: Kabum's 9 th & 10 th sessions: recording character's lines	202
Figure 8.6: Choosing images to animate the Trash Scene.....	203
Figure 8.7: Kabum's children creating the Intervention Frame.....	204
Excerpt 8.5: Kabum's 10 th , 11 th & 13 th sessions - synchronizing images and sound	206
Figure 8.8: Discussing the synchronization of images with sound	207

Figure 8.9: Enacting the discrimination at the mall	208
Figure 8.10: Improvising and recording lines in response to Rotary's play	210
Excerpt 8.6: Aplicação's 8 th session – recording character's line	210
Figure 8.11: Recording character's lines of their digital play (Going to the Mall)	211
Figure 8.12: Going to the Mall intervention frames	212
Excerpt 8.7: Rotary's 13 th session – group discussion	213
Excerpt 8.8: Rotary's 14 th session – group discussion	214
Excerpt 8.9: Rotary's 14 th session – group discussion	215
Excerpt 8.10: Rotary's 14 th session – enacting a solution.....	215
Excerpt 8.11: Rotary's 15 th session – group discussion	217
Excerpt 8.12: Rotary's 15 th session – group discussion	219
Excerpt 8.13: On-line chatting.....	224
Excerpt 8.14: Kabum's 15 th session – downloading <i>VFT</i> play.....	228
Excerpt 8.15: Kabum's 15 th session – intervening on Rotary's <i>VFT</i> play	230
Excerpt 8.16: Rotary's 11 th session – participant interview.....	232
Figure 8.13: Adroaldo expression growth	234
Excerpt 8.17: Adroaldo's deliberation dialogue	235
Excerpt 8.18: Deliberation dialogue.....	235
Excerpt 8.19: Adroaldo's complete deliberation dialogue.....	236
Figure 8.14: Adroaldo's abilities according to teacher survey	237
Figure 8.15: Tadeu's arguments.....	240
Table 8.5: Tadeu's post-activity results	241
Figure 8.16: Tadeu's abilities according to teacher survey.....	242
Excerpt 8.20: Rotary's 14 th session – participant interview.....	245
Figure 8.17: Lucia's Dramatic Faces	246
Table 8.6: Lucia post-activity self-assessment.....	247
Figure 8.18: Lucia's improvement	248
Figure 8.19: Group's expressive fluency.....	251
Table 8.7: Rotary's post-activity results for acceptance/usefulness of <i>VFT</i>	253
Excerpt 8.21: Rotary – participant interview.....	254
Excerpt 8.22: Rotary – participant interview.....	255
Table 8.8: Kabum's post-activity results for acceptance/use of <i>VFT</i>	256
Table 8.9: Aplicação's post-activity results for acceptance/usefulness of <i>VFT</i>	260
Table 8.10: Art teacher scores the group on conflict resolution ability.....	262
Table 8.11: Rotary's post-activity results for conflict resolution	262
Table 8.12: Kabum's post-activity results for conflict resolution	264
Figure 8.20: 1st improvisation of response to Rotary's play	265
Table 8.13: Aplicação's post-activity results for conflict resolution	265
Figure 9.1: Importance of <i>VFT</i> to participants.....	271
Figure 9.2: Fun using <i>VFT</i>	272
Figure 9.3: Argumentation Assessment	274
Figure 9.4: Expressive Fluency	275
Figure 9.5: Dramatic Expression.....	277

Chapter 1 - Introduction

1.1 Virtual Forum Theater: Toolset, Process, and Performance

Virtual Forum Theater (VFT) is a computer-based learning experience that allows face-to-face, computer, and multimedia-based drama. *VFT* has three parts: *VFT* the toolset, *VFT* the creative activity, and *VFT* the performance. The *VFT toolset* is a multimedia tool for the creation of dramatic plays using audio, and images that enables participatory and collaborative digital playmaking through the Internet. The *VFT activity or process* is the collaborative process of creating a digital play, and consists of much more than the *VFT toolset*, including dramatic exercises involving group bonding, social awareness and Improv skills. A *VFT performance* refers to the activity of watching and responding to a previously created digital play. In practice, the distinctions between these parts of *VFT* become blurred; many times a performance becomes a creative activity. In this thesis, *VFT* refers to the sum total of all of these aspects, including computer tools, group activity to create a digital play, and digital performance with accompanying group discussion.

VFT takes its inspiration from many sources, including Boal's *Theater of the Oppressed* (1974) (*TO*), more specifically *Forum Theater (FT)*. *VFT* began as an attempt to create an experience similar *FT* on the Internet, accessible to youth. As this study shows, *VFT* became more than this; there is evidence that group discussion and facilitation play a greater role than initially thought in creating an educational *VFT* experience. Because the

target audience was youth and not adult, the goals diverged somewhat from those of *TO* and *FT*; I view *VFT* as an educational tool as well as a dramatic tool.

Primary educational goals of *VFT* include both argumentation skills and expressive fluency in disenfranchised children and youth in developing countries such as Brazil. It is a unique educational software environment that supports the creation of original dramatic scripts between the participants through free on-line dramatic interactions. These online interactions are augmented by group activities aimed at increasing participants' skills in arguing about issues and expressing their point of view.

VFT process encapsulates the idea of creating and participating in a virtual forum theater which involves using a computer tool, engaging in off-computer tasks, and using other multimedia tools. In order to create a digital play, a physical dramatic process should take place before using the computer or digital/video cameras, followed by the virtual forum of discussion. For more details, see Chapter 3.

VFT toolset is the computer environment that allows putting the digital play together as an animation and posting it on a central server in order to be shared and modified by the groups participating of the process.

VFT performance happens when the virtual play is open, and played back in the computer. The performance is initiated by a web browser and is seen on the computer screen. After the performance is seen, a response might be created through another virtual

play. Then the cycle starts again: *VFT process* with physical rehearsals of the solution(s) and discussions, editing the digital play using *VFT toolset* and saving it on the server. For more details on the capabilities of the *VFT toolset*, see chapter 3.

VFT process and *toolset* are based on educational research and theory, practices of drama and theater for social change, and on the attributes of Internet technology. In this research, I explored how to enhance project-oriented learning in children and youth, and – in particular – how to augment their natural talents as creators and actors through the use of technological theater. I investigated how participatory digital drama plays a role in children and youth's learning through creation, expression, simulation, and collaboration. I specifically explored expressive fluency, argumentation skill, critical awareness and conflict resolution.

Participatory digital drama is the term I used at the beginning of my study in 2003 characterizing *VFT* as participatory; because the digital or virtual play is created collaboratively and the creative activity is process-oriented (the final product is not the ultimate goal). Digital drama is a multimedia presentation of a dramatic play using digital means, including audio, images, text, and video. Digital dramas are produced through the use of computer software and performed using Real One, Ambulant Player or any other free player that takes SMIL (Synchronized Multimedia Integration Language) file (the digital drama is a SMIL text file). Digital Drama is comparable to a *VFT* digital play.

Expressive fluency is the ability to express oneself through the arts by means of technology without difficulty and in a natural way. In this study the expressive fluency is

confined to digital drama, visual arts (computer drawings), and digital literacy. The ability to communicate well and convince other children and adults is called, in this study, *argumentation skill*. Similarly, *critical awareness* is the ability to process and question any information received by someone else, as well as the knowledge being incorporated.

1.2 Why I developed the *VFT Toolset*

Knowing how much theater and drama practice can enhance expressive skills and being engrained with technology, I started to explore ways to join theater with technology to help improve artistic expression and argumentation skills of children and youth (Cavallo, 2003).

Research on collaborative learning through web-based educational tools (Koschmann, 1994; Bruckman, 1998, Bers, 2001) gives evidence that children can learn from each other through on-line cooperation. In that tradition, while a master's student at Harvard Graduate School of Education (2000), I started to build *VFT* using Macromedia Director, but it did not offer a powerful enough programming environment for what I envisioned. In the next phase as a doctoral student I decided to develop *VFT* using Java.

Later during my doctoral study I collaborated with the Future of Learning Group (Cavallo et al., 2004) in some public schools in Brazil where I observed how disadvantaged children expressed themselves and argued for their points of view. These observations activated memories of my youth experiences when doing church community

work with poor children in my home town. They had a different way to express themselves than their higher-income peers, perhaps more creatively and with more emotion. I was intrigued by the differences.

I decided to find out more about argumentation skills and found studies done in Brazil comparing stories written by children from public schools (low income) with the ones from private school (medium and high income). This study found that the children from private schools have a better history of success in the development of writing abilities along the elementary years than the ones from the public sector (Lins e Silva & Spinillo, 1998). These results were attributed not only to the difference in resources offered by public schools (the public schools have fewer libraries and less incentive to read), but also by the different universe of experience the low-income children have at home in terms of textual language. Low income families have less exposure to books; they read less and write less than the middle and high income families, as verified by Carraher (1986) and Moreira (1992).

In the United States, researchers have found constant patterns of under-achievement for children from low-income homes (National Center for Education Statistics, 2002); they also found that there are continual differences in reading performance that are associated with demographic variables such as income, parental education, race and language background (U.S. Department of Education, 2000). American researchers have also concluded that low-income parents provide their children with less adequate physical and emotional support, weaker language, reasoning, and behavioral habits in preparation for

schooling when compared with middle-income parents (Duncan and Brooks-Gunn 1997; Rauh, Parker, Garfinkel, Perry, & Andrews, 2003). Therefore the risk for literacy problems and lower levels of academic self-efficacy is significantly greater for children who are low income compared with their peers who are middle income (Hart & Risley, 1995; Snow et al., 1998; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). The causes of literacy problems are multiple, and reflect experiences within the home, school, and community contexts (Snow et al., 1998).

The results seem to be similar in Brazil and the USA regarding the gap in literacy among poor and rich children. In some of Kuhn's (1991) studies on individual arguments, she observed that education level was a strong predictor of argumentation skill. Even though there are few studies directly relating argumentation skill and income level of children, some researchers dealt with lack of expression and argumentation skills in public schools with low-income students (Felton & Kuhn, 2001; Kuhn & Udell, 2003; Lao & Kuhn, 2002; Felton, 2003; Kuhn & Gol, 2005). These researchers have purposefully chosen to work with academically at-risk children and youth, knowing in advance that their argumentation skills needed to be still developed and enhanced, and that their hypothesis had to be different than with academically advantaged youth:

“one of our objectives in choosing this difficult-to-work-with population was to establish that the skills that we hoped to see develop among these students were not ones emphasized in their schoolwork and hence possibly in the process of developing anyway, a hypothesis that might be advanced if students came from an academically advantaged, high-performing school.” (Kuhn & Udell, pg 1246, 2003).

1.3 Research on *VFT*

As a result of this groundwork, I built *Virtual Forum Theater (VFT)* based on ideas substantiated in Brazil through the work of Boal's *Theater of the Oppressed (TO)* (1984) and Freire's *Pedagogy of the Oppressed* (1972). I explored *Forum Theater* (Boal, 1984) techniques with the WWW in order to engage children physically located far away from each other, so that they could discuss similar and different problems and learn how each one would resolve diverse issues by exchanging different points of view, and thereby learn how to express and argue for their ideas.

In concert with developing *VFT*, I studied *VFT* with children and youth in USA and Brazil through five multi-week after-school workshops aiming to study how *VFT toolset* extends and augments face-to-face dramatic activities for improving argumentation skills, expressive fluency and social conscious awareness in disenfranchised children and youth.

The studies were designed as an educational intervention, which means that concomitantly with the research goals and activities, the participants would be learning new or improving already acquired skills. The studies use the methodology of Design-Based Research (DBR) where each experiment gives feedback to the next in terms of the learning environment and the design of *VFT toolset*. The design of the learning environment and tool were influenced by how the participants responded to the planned activities and to the tool. Findings from these studies contribute to the development of progressive and empowering educational software, and inform us of its relation and impact on cognition and learning.

Note that the term *intervention* is used throughout the chapters in different contexts and with several different meanings: *educational intervention* as explained in the previous paragraph, Brecht's *dramatic intervention*, Boal's (or *Forum Theater's*) *dramatic intervention* and the (perhaps different) kind of *dramatic intervention* introduced by *VFT* and implemented with *VFT* toolset. I also use experiment as another word for educational intervention.

VFT as educational software can promote understanding of differences between cultures. In large countries like Brazil, regional diversities enrich the culture of the country, but also need to be better understood, respected, and celebrated by children throughout the country.

1.4 Organization of the Thesis

In the chapters that follow, I introduce the theoretical framework in which this research is designed. I present relevant research. I discuss the *VFT toolset* and the process enabled by it. I describe several *VFT* educational experiments, or case studies. I draw conclusion and propose future directions.

Chapter 2 (Existing theories and research) introduces constructivism (Piaget, 1977), constructionism (Papert, 1990), Brecht's Epic Theater (1964), Boal's Theatre of the Oppressed (1984) as the four main pillars of this research; Constructivism informs what should be expected from different ages groups in terms of learning and process of reasoning and how children and youth constructs knowledge. Constructionism lights the

path of computer use as a learning tool and how children and youth constructs knowledge when using computer resources.

Socio-constructivism (Vygotsky, 1978) informs the collaborative activities among participants and facilitator such as giving feedback and modifying each other's virtual play in order to resolve the portrayed issues; Theory on Argumentation (Hitchcock et al., 2001) informs the analysis of data on argumentation skill by helping me to identify if there was change and possible improvement on the participants' debates. Positive Technology Development (Bers, 2006) is used to triangulate survey's data and to shed light into a possible future line of research on *VFT*. A few other perspectives are visited and some of them are used in data analysis. This chapter also describes other academic work that relates to this research and how this work influenced the design of *VFT*. Most of the work is on technology and education with the exception of one work related to *Theater of the Oppressed* and another related to Living Newspaper, which I discovered during summer 2007 through an on-line academic paper on Theater in Education (TIE).

Chapter 3 is about *VFT*, how it relates to the theoretical framework, a description of the process and activities, the toolset, the virtual performance, and a discussion on how *VFT* can be used as an after school activity.

Chapter 4 describes how *VFT* was created, using Object-Oriented (OO) software engineering. I describe the architecture of selected classes. Design interactions and some of the underlying mathematics are explained.

Chapter 5 presents the overall methodology of the three experiments. Chapter 6 details the methodology used in the first experiment, including its sampling, settings, relationship established with the participants, data collection, data analysis, coding strategies, and analysis of the resulting digital play

Chapter 7 delves into the second study, which was intended to determine (among other results) whether the *VFT* toolset was ready to be used in the final study. Chapter 8 describes the final study, done with three distinct groups, and contains qualitative and quantitative data. The qualitative data is composed of verbal data of participant interactions in most of the planned activities such as brainstorming for scripts, improvisations, recording characters' lines, taking pictures of their enactments, and creating the digital animation, among others. Chapter 9 reflects over the study and experience gained by the researcher, future steps for *VFT*, as well as possible pathways for other future research.

1.5 Personal Inspiration

My research in the design, development and use of *Virtual Forum Theater (VFT)* in educational settings drew upon my own experiences growing up in a Brazil where theatre, music, dance and storytelling were present in the streets in even the most impoverished areas. Academically, I am an electrical engineer. Intellectually and culturally I am steeped in a Brazilian tradition of theater and drama as instruments for social change. Developing *VFT* has afforded me an exciting and challenging opportunity to merge arts and technology with powerful learning opportunities embedded in web-

based collaborative conflict resolution through simulations, argumentation, and critical awareness.

In Brazil, there is a deep and long tradition of social expression by the poor through highly creative theatrical and dance manifestations. Capoeira is a martial arts form disguised as dance, created hundreds of years ago by slaves. During the time of the dictatorship (1964 – 1985), direct expression of ideas deemed “inappropriate” were censored and the activists punished. This, however, did not prevent the expression of ideas of freedom as the artists, activists, and public audiences became more creative and clever in order to escape the censors. In 1985, the society as a whole went to the streets demanding election for president and Brazil returned to democracy (Historia do Brasil.net, 2005). I have the firm belief that the best path for Brazil to fulfill its promise as an economically equitable and multi-racial democracy is through an educational system that can build upon its unique culture and strengths while providing access and opportunity through modern technology. My goal has been to find ways to encourage and foster such a rich educational learning experience.

Doing the bulk of this research in my home town was very important to me, not only because of the culture, but also to give a chance to Brazilian’s youth to get involved in this kind of art and technology work. Their attitude was fantastic and they were very welcome and interested in all the activities and in the proposed way of doing theater.

All the research presented in the previous section tends to create a portrait of low-income children as less expressive, less skilled narrators and less able to create arguments.

Perhaps the researches do not take in consideration the different culture where these children are immersed and how they might have an unique style of expression, narration and argumentation. For example, in Brazil the artistic culture abounds and the influence of the African culture is strong, especially in the low-income class. It is crucial to take in account the sense of strengths and richness of people's unique culture and bear in mind the potential of a "popular intelligence."

In this research I interested in how youngsters reconcile production (their creations), purposes, and audience. I tap into the difference in expression and argumentation style between what is required by the dominant society and what exists in the less privileged classes. I introduce digital drama as a tool to work on these differences, and to encourage more understanding between multiple, sometime clashing cultures. Exploring the Theories of Deliberation Dialogue (Chapter 2) and using the *VFT process* allows me to unveil what the children know and feel – but do not yet know they know, or feel – and allows me to reach this "niche". The experience is meant to be transformative as a personal and societal level.

Chapter 2 - Existing Theories and Research

2.1 Introduction

This chapter presents the theoretical background and relevant research upon which this research is built. This thesis is interdisciplinary, borrowing ideas from education, drama, and computer science. The goal of this thesis is to re-purpose transformative drama techniques for children. In education, constructivism and constructionism are the foundational pillars of my work. In drama, Brecht's and Boal's theories inspire me, and Drama-in-Education's principles guide me in interacting with participants. It is valuable to highlight the connections between the theories of Brecht and Boal and the theories of Piaget, Papert and Freire in order to situate the educational contribution of Brecht's and Boal's theater in relation to this work.

Socio-Constructivism explains how constructivist learning develops in the social environment fostered by *VFT*, Computer Supported Collaborative Learning (CSCL) informs the design of *VFT* toolset, Argumentation Theory helps to explain the role and kind of argumentation elicited in this research, and Positive Technological Development (PTD) brings some insight on other research ideas on *VFT* and helps to triangulate survey data. All the theories above complete the embroidered conceptual framework of *Virtual Forum Theater*. Some of the related work inspires and forms the basis of my interest; and research design, other work simply informs the design of the *VFT* toolset.

2.2 VFT Conceptual Framework

I believe that children learn better when actively engaged on a meaningful issue to them and while interacting with each other, that improvisation is a tool that promotes active participation, and that a digital play is a powerful artifact to act and reflect upon; therefore I implemented my research taking in account aspects of the most important theories (Cavallo, 2004). This conceptual framework informed the design of my research on *VFT* (cf. Figure 2.2); it also guided me through the educational interventions and data collection.

My overall hypothesis is that an educational/experimental intervention that uses *VFT* will tap into children's own spontaneous gift as narrators and learners to help improve their argumentation skills, expressive fluency and conflict resolution skills. This is especially important when it comes to children and youth who according to researches do not have those abilities well developed as it is the case of low-income youth.

In the USA, most of low-income youth lack proper school education and the resources necessary for their holistic development as shown by several studies demonstrating correlation between income-level (among other factors), child development and school achievement (Patterson, C. J et al., 1990; Duncan, Brooks-Gunn, & Klebanov, 1994; Duncan & Brooks-Gunn, 1997; Duncan, Brooks-Gunn, Yeung, & Smith, 1998; Washington School Research Center, 2001). Studies also show correlation between low-income parents' level of education, engagement with their children education and school

achievement (Phillips et al., 1998; Duncan et al., 1998; Shea, 2000; Taylor, Dearing, & McCartney, 2004; Votruba-Drzal, 2003).

Brazil's public education is in worse shape than in the USA and the poverty level of many children is much higher (COEP, na; Carvalho & Ramalho, 1983). *VFT* thus target low-income youth from USA and Brazil hoping to demonstrate its potential ability to unveil and leverage their argumentation skill, giving them voice to decrease the oppression that surrounds them.

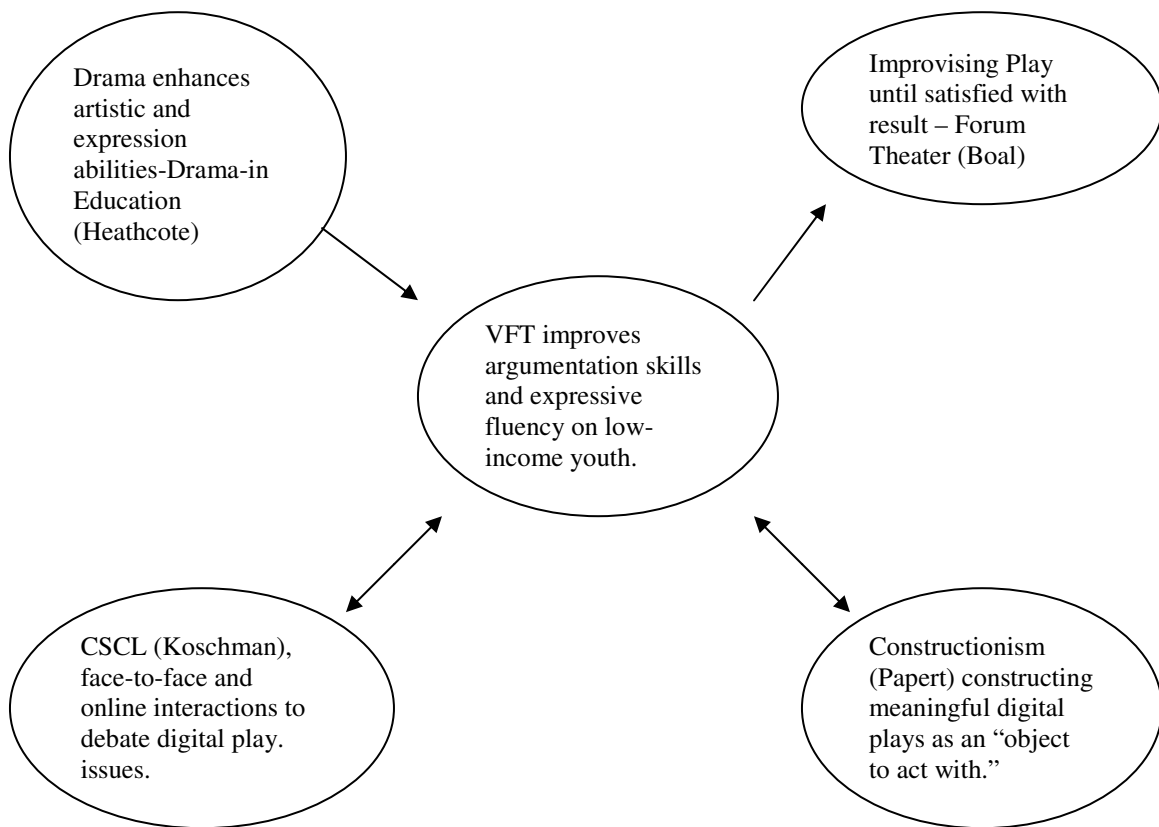


Figure 2.1: VFT Theoretical Framework

VFT attends to the principled approach of the use of computers in collaborative learning suggested by Koschmann et al (1994) which is defined as multiplicity, activeness,

accommodation and adaptation, authenticity, articulation, termlessness. Mentoring should encourage multiple perspectives, representations, and strategies, and *VFT* is designed to facilitate this multiplicity of views. *VFT* promotes active learning and the learners are on the constant doing. Taking the perspective of the other, putting oneself in someone else's shoes, discussing relevant and engaging issues allows incorporation and modification of the learner's understanding (accommodation and adaptation).

The virtual plays created through *VFT* are authentic when using stories of the community the participants belong to; therefore providing an authentic object of study. One of the goals of *VFT* is to foster articulation and expression. As the youth is dealing with their daily life issues, they perceive that nothing can change from day to night, but the process of change might take on a life of its own. It is a termlessness or life long process (Schank et al, 1993).

Figure 2.2 depicts the intersection of worlds and views that shape *VFT* as an educational tool.

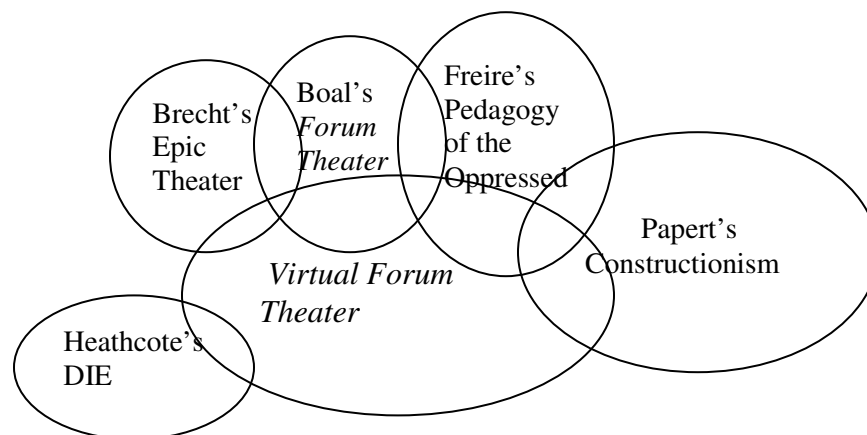


Figure 2.2: VFT's universe

2.2.1 Constructivism and Constructionism

Learning theorists, developmental psychologists and pedagogues such as Piaget (1977), Vygotsky (1971), Papert (1990), Dewey (1938), Freire (1972), Duckworth (1987), Gardner (1973) and others from the open school movement give us insight into how to re-think education, imagine new environments, and put new tools, media, and technologies at the service of the growing child. They remind us that learning, especially today, is much less about acquiring information or submitting to other people's ideas and values, than it is about putting one's own words into the world, finding one's own voice, and exchanging our ideas with others (Ackermann, 2001).

The learning side of this research is based upon the theoretical framework provided by constructivism and constructionism. Constructivism posits that people construct their own knowledge and are not mere passive receivers of pre-packaged items. “To understand is to invent” (Piaget, 1977). A teacher's role is to create conditions for invention, for construction of knowledge by the learner, rather than to attempt to provide ready-made knowledge (Papert, 1996). To Piaget, knowledge is not information to be delivered at one end, and encoded, memorized, retrieved, and applied at the other end. Instead, knowledge is experience that is acquired through interaction with the world, people and things. Conceptual change has almost a life of its own (Ackerman, 2001).

Constructionists base their work upon constructivism, but also believe that learning happens especially felicitously in a context where the learner is consciously engaged in constructing a public entity, whether it is a sand castle on the beach or a theory of the

universe (Papert, 1990). Papert's constructionism helps us understand how ideas are formed and transformed when expressed through different media, when actualized in particular contexts, when worked out by individual minds (Ackermann, 2001). Papert emphasizes digital media and computer-based technologies as objects with which to think, and as extensions of one's construction artifacts because of their inherent malleability to adapt both to the cognitive style of the learner as well as to the domain being investigated. *VFT toolset* was created following constructionism and I hypothesize that it is used in this research as an "object to act with/upon"; See Figure 2.1.

2.2.2 Brecht's Epic Theater

Brecht tries to make the case for theater as learning, as well as entertainment. He claims that learning should not just be a serious process but also fun. Therefore, theater fits into the learning process because both the actors and the audience can learn with the show and amuse themselves:

If there were not such amusement to be had from learning the theatre's whole structure would unfit it for teaching. Theatre remains theatre even when it is instructive theatre, and in so far as it is good theatre it will amuse. (Brecht, 1964, pp. 204)

He perceives his epic theater as an instrument of knowledge and learning. He believes that it is also what the scientific audience of the 20th century needs from theater (Brecht, 1964).

The Epic Theater created by Brecht is a reaction to Aristotle's approaches to theater and a movement to modernize it. Brecht wants a form of drama that does not bring the audience into catharsis (the spiritual cleansing of the spectator by fear and pity). The identification of the spectators with the character provides them with sensations and draws them into a

story, making them feel part of it and sharing their experience with the characters (Brecht, 1964). Brecht seeks to minimize the empathy (becoming other) of the spectator with the character in order to facilitate the critical view of the character's actions. To Brecht, Aristotelian catharsis almost eliminates any of the audience's critical perspective and capacity for action.

According to Brecht, the Aristotelian play essentially shows the world as static. It tends to mix together the events portrayed and presents them as having an unchangeable fate, over which man has no significant control. The learning-play or Brechtian epic play is essentially dynamic because it shows the world as it changes (and also how it may be changed). It tries to teach the spectator a certain practical attitude, so he is capable of changing the course of actions and intervening actively in his life (Brecht, 1964).

Through the Epic Theater, Brecht wants to create a drama where the spectator would say "I'd never have thought of it – The suffering of this man (character) has got to stop – I laugh when the characters weep, I weep when they laugh." (Brecht, 1964). It turns the audience into an observer and arouses their capacity for critical thinking and action. It tries to encourage the audience to make decisions and create a picture of the world. The spectator is made to face the plot instead of just unconsciously living it. The spectator stands outside reflecting and being amused by the play. The human being is the subject of the inquiry and the play is an object to reflect upon. The social being determines thought and the play is about reason and not only feeling (Brecht, 1964).

External acting technique is the way Brecht perceives acting for his Epic Theater. The actor should maintain a distance from the character's emotions and life. The actor should portray and demonstrate the character's emotions and feelings but not inhabit the character. The actor should be in control of the character; he should enact the character, but not lose sight that he (the actor) is in charge. The actor needs to hold his character at mind's reach, ideally as an object to think with. He should not try to be extremely realistic on stage, for example crying and suffering in a real manner. The sense of mimicking and artificial acting is acceptable in Epic Theater. Brecht's plan is one way to avoid catharsis, maintain the audience's distance from the drama and prevent their being swallowed by it.

Brecht's concept of *gestus* or gestures (an attitude or a single aspect of an attitude expressible in words or actions) introduces an idea of "basic gesture," which means forcing the action into a particular attitude that excludes all doubt and ambiguity about the incident in question. Emotions can be demonstrated through some set of universal gestures. Brecht was inspired by Chinese performance arts that make excellent use of their own cultural gestures. They have special ways to show whether a person is out of control as, for example, bringing one's own hair into the mouth and chewing it. The Chinese show inner emotional states through external actions that are commonly recognized in their society. So, anger is portrayed differently from sulkiness, hatred from distaste, love from liking, etc (Brecht, 1964).

Intervention -- in Brecht's theory -- is any activity that interposes itself between the audience and the actors for the purpose of challenging or interfering with empathy. Brecht introduces intervention methods like projecting images and/or documents onto big screens at the back of the stage. The images might confirm or contradict what the characters say. Projecting images or film of events similar to the play that have happened somewhere else in the world presents an actor's activity as open to criticism. The goal of such interventions is to make the audience more conscious of the experience that is happening on the stage and that the characters' actions could be changed. The use of music is yet another way to induce a critical approach to the characters' behaviors, as well as to supplement and vivify the action. Another technique of intervention was the way the choruses made the audience aware of facts unknown to them (Brecht, 1964). These techniques of intervention were devised in order to achieve the alienation effect, which tries to hinder the audience from simply identifying itself with the characters in the play (Brecht, 1964).

2.2.3 Boal's Theater of the Oppressed

The *Theater of the Oppressed (TO)* by Augusto Boal (1974) can be a powerful tool to rehearse situations where change is desired and to facilitate learning during the process of creation and rehearsal. *TO* has a proposition of interference and intervention and its goal is to create disequilibrium which prepares the way for action (Boal, 1974). Several techniques provide a forum for actions. *Forum Theater (FT)* is one of them.

To create an *FT*, a group gets together and creates a short play around a community or universal issue. The play usually has a short duration, typically of only five to ten minutes. The group goes through a process of collaborative creation that involves a series of specific exercises and dynamics. One facilitator leads the group, and can be a theater director, a community leader, or group member who has some training in TO. This facilitator introduces the dynamics necessary to build a good group relationship, to collaboratively create a script and to lead the rehearsals. Boal created the figure of the “joker” to lead the final presentation¹; Boal’s joker can be this facilitator or any other member of the group.

The performance of the resulting play takes place in front of an audience of active participants, called “spect-actors”, who are interested in the subject of the play. The goal of the playwrights and actors is usually social change. They hope to open a space for enactment of possible solutions for change. The “spect-actors” are invited by the joker to watch the play and interrupt it in a moment of crisis where they disagree with the course of action and want to propose a different resolution. Sometimes the joker signals this moment of conflict. The joker manages the “spect-actors” interruptions, solutions and general interactions. According to Boal (1992, p. 232), the joker should decide together with the audience if the intervention works (solves the conflict), if it is magic or inadequate. This interruption is the intervention proposed by Boal.

The play is presented once and afterward the joker asks the audience to divide into groups of four in order to reflect on and discuss the play. The spectators are expected to

¹ Personal summary based on all workshops I have participated in with Boal.

think about how they would solve the issue or conflict described in the script. The play is acted out once more with the audience as active participants; a member of the audience can stop the play, go on stage, and take the place of the protagonist or any other actor. Alternatively, the “spect-actor” can give directions to an actor on how to behave, and on how to act and resolve the situation.

Boal’s implementation of an intervention is similar to the distancing techniques proposed by Brecht to break possible emotional identifications, but also to give a chance to the spectator to think, reflect and try out different solutions². Boal’s intervention extends Brecht’s intervention by giving the audience a chance to rehearse a change of action during the time of the play instead of only reflecting and learning during the presentation, and acting thereafter. Boal recommends that the spectator substitute for the character and enact her own solution, instead of directing the actor on how to act out her solution.

The setup of the stage is usually simple, not only because of a lack of resources among the groups, but also to prevent the audience from entering into an illusionary state. The audience should remain alert in order to think and reflect on the issue being presented. Input, feedback, and active participation of the audience are the main goals of the show (Boal, 1992). This implementation also follows and extends Brecht’s goal of having the play as an object to think about. As in Brechtian Epic Theater, in the *Theater of the Oppressed*, the image of the scene is more important than sets and backdrops or anything

² Observations and notes from my participation on Theater of the Oppressed and Rainbow of Desire Workshop at Brecht Forum at New York respectively in 1998 and 1999 led by Boal, as well as on Forum Theater presentation led by Boal and enacted by Harvard students at Harvard Graduate School of Education in 2003.

that makes the scene look very realistic. Therefore, the *TO*'s stage only includes the people and the things (props) involved in the event. A minimum of objects should be used so the audience can discern where the aesthetic space is located, how it is configured, and where it starts and ends (Boal, 1995).

Drawing inspiration from Freire, Boal (1974) uses participatory theater to develop a similar awareness through modeling real-world situations and role-playing potential solutions. Boal follows the same premises than the *Pedagogy of the Oppressed* (Freire, 1972), in a similar way to how Brecht uses theater as a learning tool; therefore the interception between the two perspectives (Figure 2.2).

Boal emphasizes that we must get to know our body and make it expressive if we want to use theater as a tool of communication, language, and learning (1995). This notion has a relationship with Brecht's *gestus* because being able to portray the reality of the character depends on knowing how to use the body and gestures to imply emotions and inner states. Not all the people who practice *TO* are professional actors; therefore, they are more likely to use Brecht's external acting techniques than professional ones. One needs to know the capabilities of one's body in order to use it on stage to represent the character in a way that is clear to the audience. This means being able to employ universal attitudes (gestures/*gestus*) that can portray and demonstrate certain behaviors or inner states.

When Boal created the Arena Theater of Sao Paulo, he explored Brecht's concept of *gestus* and created techniques like "character 'masks' – a set of mechanized actions or

gestures, not material props – in order to exaggerate the habituating effects of social roles and behavior” (Schutzman, 1994, p.146). These gestures are performed by the actor’s body. During a workshop for the Brazilian Congress of Street Boys and Girls, Boal worked for ninety minutes with street children from 12 to 17 years old while they put together a three minute “family” scene as part of *Forum Theater*. Boal’s directions to this group also resemble the notion of gestures from Brecht: “The third step consisted of showing through body language all their wishes; all the thoughts that arose should now be expressed as gestures in movement” (Boal, 1994, p.82).

According to Boal, through Aristotelian catharsis, the desire to change society is reduced; the catharsis eliminates the desire of the protagonist and spectator to modify reality. Theater is not to paralyze people from acting, but to motivate them to modify what is not working for them. Theater is a safe space for rehearsing possible alternatives of action to be implemented in real life (Taussig & Schechner, 1994).

Boal writes about simultaneous dramaturgy where actors and audience write a play together (Boal, 1974). The script of a play might be modified by the “spect-actors” interventions; therefore *FT* might also be seen as a tool for playwrights who would like to incorporate the audience’s opinions in their original creation.

Boal conceives his work on *FT* as an organizing tool, as processes that participants engage in to work their way out of oppression, to express their opinions, and to liberate

their voices (Cohen-Cruz, 1994). Boal extends Brecht's ideas and continues to look for ways that the theater can liberate people (illustrated in Figure 2.2).

Bertolt Brecht's theory claims that the world is revealed as subject to change, and the change starts in the theater itself; the experience is revealing on a "consciousness" level, but generally not on an "action" level (Brecht, 1964). The spectacle is a preparation for action (Boal, 1974). Boal advocates that the spectator should no longer delegate power to the characters either to think or act in his place; he must think and act for himself. Boal (1974) claims that theater should be action and rehearsal for change. *VFT* tries to expand this action and rehearsal for change to communities physically apart.

2.2.4 Connections between Brecht, Boal, Piaget, Papert and Freire

In an effort to combine dramatic and educational theories, I compare Brecht's concept of theater as an instrument of teaching with ideas of the seminal learning theorists, Piaget (1977) and Papert (1990), who state that knowledge is actively constructed by children interacting with their world.

According to Papert, who extends the work of Piaget, constructing knowledge means externalizing your thoughts in an artifact, getting feedback from the process of its construction, reflecting on it, and re-internalizing the new thoughts; "this leads us to a model using a cycle of internalization of what is outside, then externalization of what is inside and so on" (Papert, 1990, p.3). Grasping concepts that are abstract and difficult to

comprehend -- through an object to “think with” -- helps to make the knowledge concrete and gives alternative entries into the subject (Papert, 1990).

While Brecht uses the play as a concrete object to be reflected upon and wants the audience to learn from the experience portrayed by the actors, Papert believes that any object that is constructed by the learner is a representation of the learner’s thoughts about a given subject matter. For Papert the process of building and reflecting can happen simultaneously and enhance the learning. Brecht makes a bridge between theater and learning, but thinks of the audience as learning by reflecting upon the experience of the characters. Taking into account both Brecht and Papert, one might theorize that Brecht’s Epic Play is an object that the audience uses to “think with” and from there reaches conclusions to possible paths for action and change. However, Brecht’s techniques still allow some kind of identification with the characters, and stress the importance of moving in or out of the staged situations. According to Ackermann’s (2002) educational perspective, empathy is as important to learning as is critical distance; ideally one can accomplish both.

Boal’s audience learns by doing. He is influenced by Paulo Freire with whom he worked during exile, who stated (Freire, 1972) that the best and most effective learning happens when the learner is interested in the subject matter and can construct his own knowledge by experimenting and doing some kind of practical project. Freire’s primary concern was with people’s liberation from injustice and oppression. He viewed education as essential for people to develop critical thinking, and for gaining awareness and control of one’s

environment. Freire (1972) worked with oppressed people in the northeast of Brazil, exploiting local concerns to help participants develop literacy and to become critical questioners of, -- and conscious actors upon -- their environment.

While Freire was concerned with the cultural environment where the learner was inserted, Papert concentrated on the introspective world of the learner, even though both collaborated with each other in the realm of project-learning and learn by doing. For Papert the idea of anthropomorphizing an object, the turtle in the case of the geometry microworld, was so that the learner could project herself onto the object and use her own awareness as a guide for the object in the virtual world (Papert, 1980). This projection extends in the same way to other objects in the virtual domain: one learns to take the object's point of view in planning and implementing its behavior.

Papert terms this "hands-on plus heads-in" meaning that "hands-on" construction is more valuable when accompanied by "heads-in" thoughtful reflection and engagement. Boal's *Forum Theatre* uses a similar idea where the behavior of all characters is open for all to influence. Boal's approach matches with the externalization of thoughts considered by Papert. The play created using *TO* techniques (such as *FT*) is an artifact built to express internal thoughts.

2.2.5 Socio-Constructivism

The socio-constructivism paradigm (Vygotsky, 1978) is a framework for understanding the actions of children in social situations. In this research on *VFT*, participants work in

groups to negotiate meaning, take different roles in their collaborative stories, swap points of views and elaborate arguments to explain their choices and to solve conflicts. Vygotsky believes that people have an intrinsically social motivation to share experience with others.

Vygotsky (1978) claims that learning is both social and cultural. A child learns to speak because she wants to communicate; there is a social motivation to learn. One learns in order to participate in one's own culture. Vygotsky suggests a sequence of maturational levels that influence psychological development and some transitions, such as lower to high learning and zones of proximal development³.

Vygotsky believes that there is a close relationship between learning and development where, in some instances, learning can support developmental shift. Mentoring and coaching the child at a phase where her actual developmental level is consolidated and she is almost at her next level of development makes the child move to that next level; which characterizes a zone of proximal development (ZPD). Therefore working together with the child at this ZPD is effective in advancing her psychological or cognitive development. As Vygotsky (1978, p. 90) explains ZPD:

We propose that an essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with peers. Once these processes are internalized, they become part of the child's independent developmental achievement.

³ CD 151 Feldman's Lecture delivered on November 17, 2004

Analyzing the social learning that happens during the research on *VFT* among the pre-teens and teens through Vygotsky's framework is critical to understand the results yielded by this study.

2.2.6 Drama-in-Education

As Heathcote (1984) has written, to use drama in education is to look for the precise dramatic pressure that will lead to a breakthrough, to a point where the students have to think about a problem in a new way, to fight for language adequate to the tension they feel. It is to literally bring out what children already know, but do not yet know they know. Heathcote claims that we should use drama to expand children's awareness, to enable them to look at reality through fantasy, to see below the surface of actions to their meaning, and not just to produce plays. Drama-in-Education (DIE), created by Dorothy Heathcote, has the objective of understanding rather than playmaking. Theatre is concerned with communication between actors and audience; drama is concerned with experience by the participants, which means drama is "to practise living", as well as "a way of learning" (Way, 1967).

Some well-known techniques of creative dramatics, for example story drama or playmaking invented by Winifred Ward, have been used with children (its original target) for decades. According to Luke Jorgensen (2000), these techniques are similar to Boal's *FT*. As Jorgensen (2000) describes, both playmaking and *FT* need an experienced facilitator to guide and deepen the learning of the participants. A polished performance is not the goal; the participants are the center of the process. The main objective is

improvising and acting out myriad solutions in order to learn experientially inside the drama instead of outside in a passive mode. Jorgensen (2000) also points out the strong similarities between Boal's *FT* and Theater-in-Education (TIE) used in England. Both creative drama and TIE imply putting together a play to be performed for an audience. He also reflects on the differences and similarities between the drama teacher and Boal's joker. Jorgensen gives examples of how he practices playmaking with children through side-coaching and teaching-in-role (2000, pp.69).

In his dissertation, Jorgensen explains in detail how Boal claims that his joker system (Arena Theater) is very flexible and not-structured, while the teacher-in-role (teacher taking the role of a given character while working with the students) tends to be more tightly structured and the drama teacher tends to be in control of the students' creation process (Jorgensen, 2000, pp. 85). There is also a relation between Boal's joker and the narrator from Brecht's Epic plays. While the joker intervenes in a *Forum Theater* session, directing himself to the audience, so does the narrator or even an actor/actress might step out of character and reflect on his/her behavior in the Brechtian plays.

Creative drama (McCaslin, 1996), Theater-in-Education (TIE) and Drama-in-Education (DIE) (Heathcote, 1984) are very successful approaches and methodologies created for children (Jorgensen, 2000). According to Jorgensen's research, using some of Boal's *TO* techniques like *FT* and *Image Theater* with pre-teens and teenagers is also very effective⁴.

⁴ He was able to prove this through some case studies and his own practice with Tufts Children Theater. He writes about the work of Michael Rohd, founder of Hope is Vital, Ron Jones with Urban Improv in

2.2.7 Argumentation Theory

There is an extensive body of work on argumentation dialogue originated from Artificial Intelligence (AI) research and more recently used on design of systems of autonomous software agents (Parsons *et al.* 1998, Jennings *et al.* 2002). Some models of dialogue stances were created as for example the one from Walton and Krabbe (1995). The dialogue styles suggested by them are: *Information-seeking* - a person who desires to obtain an unknown answer to some question tries to find it from another person who does know; *Inquiries* - everybody collaborate to answer an open factual question to which none has the answer; *Persuasion* - a person who endorses some plan tries to convince others to accept it; *Negotiations* - people try to agree on how to divide a limited reserve among themselves; *Deliberations*- people discuss what action is to be taken in some situation; and *Eristic* (strife-ridden) - people dispute orally as for example trying to voice injustices.

The dialogue style most used by the youth debating their virtual plays is the deliberation one. Hitchcock et al. (2001) claim that little attention has been paid to deliberation dialogue, even though AI has been focusing on collaborative decision-making software which might be directly connected to deliberation schema.

Deliberation dialogue differs from the others for a few reasons. The focus of deliberation dialogue is about what is to be resolved or done in some situation or problem; therefore it calls for action unlike inquiry, information-seeking and eristic dialogues. The deliberation

Boston, MA and his own work with Tufts Children Theater, where they all blend creative drama or Theater-in-Education with some of Boal's TO techniques.

discussion is a mutual one directed at reaching a joint decision over a course of action unlike persuasion dialogue which is very competitive and only the point of view of one individual might prevail. Negotiation dialogue might involve hiding information and is also competitive where the mutual goal and collaboration are not appropriate as it is in the deliberation one. The deliberation dialogue is not an attempt to persuade the others, it requires collaboration to come up with some solution that does not need to be unique (McBurney, Hitchcock & Parsons, 2007).

The structure suggested by McBurney, Hitchcock and Parsons (2001) consists of six stages: *inform* – conversation about the leading question, desirable goals, constraints, point of views by which plans may be decided upon, and facts pertinent to the evaluation; *propose* - putting forward action-options relevant to the leading question; *consider* – commenting on proposals from various perspectives; *revise* – revising all items presented at the inform stage; *recommend* – recommend a plan for action; *confirm* –accepting recommended option(s) by each participant. They also propose an *open* – raising the leading question and *close* – closing the dialogue. This structure is being proposed to be used when creating software with autonomous agents; therefore it has a series of rules and constraints to enable programming.

This structure guided the coding of the arguments delivered by the participants during this research. It helps to prove the enhancement of argumentation skill/style for some of the participants.

It is also important to look at the research on argument and argumentative discourse in the learning science. In this field individual argument is seen as a product, while argumentative discourse is considered to be a process. Most of the empirical research is on argument as a product. In some of Kuhn's (1991) studies on individual arguments, it was observed that chronological age was not a strong predictor of argument skill, but education level was. Research concludes that there may be slight improvement along some dimensions during the adolescent years, but skills in producing or identifying firm arguments remain poor (Brem & Rips, 2000; Knudson, 1992; Means & Voss, 1996; Perkins, 1989; Kuhn et al, 1997).

Graff's (2003) research implies that individuals may exhibit stronger argument skills in the dialogic context of argumentative discourse than they do in producing their own individual arguments in support of a claim. On the other hand, there have been few systematic analyses of dyadic argumentative discourse at different age levels compared to those of individually generated arguments. Anderson et al (2001), Pontercorvo & Girardet (1993), Felton & Kuhn (2001) and Kuhn & Udell (2005) are examples of a few. The existing body of research using the microgenetic method (Kuhn, 1995; Siegler, 2006) demonstrates that cognitive skills have been shown to develop as a result of frequent engagement with problems that require them in a social context, which provides a rationale for involving students in intense practice of argument.

Research has shown that youth argumentative skills can be improved by educational interventions (Felton, 2004; Felton & Kuhn, 2001; Kuhn & Udell, 2003; Kuhn et al.,

1997; Lao & Kuhn, 2002; Kuhn & DeFuccio, 2002; Anderson et al.(1997); Anderson et al (1998); Anderson et al., 2001; Chinn & Anderson, 1988; Reznitskaya et al., 2001) where extended engagement in argumentive discourse and reflection on the arguments constructed are supported. Most of these researches explored argumentation used on science problems towards inquiry discourse (Chinn & Anderson, 1998; Driver et al, 2000; Chinn et al, 2000; Kafai et al, 2000; Duschl & Osborne, 2002; Bell, 2004; Chinn, 2006, etc), some studied argumentation on persuasion and negotiation dialogues (Benoit, 1984; Kuhn et al, 1997; Kuhn, 2001; Felton & Kuhn, D, 2001; Anderson et al, 2001; Lao & Kuhn, 2002; Felton, 2004), but very few research (McBurney et all, 2001) has explored argumentation used on deliberation discourse with the intention to decide the best available course of action.

Even though the study of Felton (2004) and Kuhn (2001) has important results linking thematic dialogue practice and reflection with enhancement of argumentation skill, it does not apply directly to my research because it takes in account the rebuttal and the necessity to dismantle the partner argument, in other words, it explores persuasion stances of discourse. The model suggested by Felton & Kuhn (2001) would not be effective to analyze this research data on deliberation argument, but it demonstrates nevertheless that argumentation skills can be enhanced by well elaborated educational interventions.

The research from Kuhn and her colleagues explored themes such as capital punishment and abortion to be discussed by the school age pre-teens and teens in their school settings

(Felton & Kuhn, 2001; Felton, 2004; Kuhn & Uddle, 2003); their interventions also involved academically at risk eighth graders. They worked with already existing issues (capital punishment and abortion) that could or could not be important and relevant to the participants on the studies, which might interfere with the results of how much these youth could argue with success. I hypothesize based on situated learning (Lave & Wenger, 1991), and learn-by-doing (Papert, 1980) that engaging adolescents in conflicting subjects that are relevant and part of their daily life promotes an authentic improvement of argumentation skills.

2.2.8 Using Brecht's and Boal's Work with Children

The external acting technique makes it easier and more natural for children to enact. As Brecht illustrates: "the performer portrays incidents of utmost passion, but without his delivery becoming heated" (Brecht, 1964). Children usually like pretend play, which is one of the first forms of play they make use of during early childhood. They use dolls and action figures to create role plays, using their own voices and facial expressions. The emotions are relatively uncharged and expressed in an almost calm way. They try to make sense of the world around them and they learn a good amount of social skills in these kinds of one-to-one or solitary games (McCaslin, 1996).

It is practical to work with children using the Brecht's external acting technique, as it fits with their natural way of playing. Narrative is the most natural style of communicating. It is developed at a young age through make-believe play as Ackermann summarizes:

To a 3 year old, it is not very different to enact a scene, to mimic a character, or to tell a story. In their pretense play, children set the stages and build the props that enable them to revisit, recast, and play out their fears and fancies (Ackermann, 2002).

Any child who wishes to act is ready for it at any time. Putting on a play is only a matter of learning to write a script, planning the order of events, and choosing the sets. It can require even less if the child is allowed to use images and voices instead of text. Choreography and imagination are the only requirements. It is my view, in this thesis, that the external acting and the narrative style used by Brecht can be easily used and explored with children.

Forum Theater offers a more organic and constructivist process of learning than regular theater presentation. If the children also have the chance to create their own plays and present them as Forum Theater, the learning is more complete and deep because they are really learning by doing and creating an object with which to think.

Some organizations like Theater of the Oppressed Lab – *TOPLAB*(1990) from Brecht Forum in New York, *Theater of the Oppressed* (1997), *Headlines Theatre* (1998), *London Bubble* (n.d.), *FORMAAT* (n.d.) in Rotterdam, Netherlands and of course the *Center for the Theater of the Oppressed*-Rio de Janeiro – *CTO-Rio* (n.d.) have done work with school age children and youth. Even though there is not extensive work on Boal's TO with children, the existing ones seem very effective. All these existing projects prove that it is suitable to use Boal's TO techniques with children.

Boal claims that the theater is the participants themselves, which means that the characters can be portrayed by regular people and not only by professional actors (1992). He democratizes the theater, and this democratization can and should involve children as

well. Children should be the first recipients of change, as they are even more active learners than the adults and are usually very open to transformations. It seems natural to give them the chance to design the world where they are growing up by planning and living it through role playing in a safe and anonymous environment. The world changes at a rather fast pace, especially in this technological era; therefore, giving children the tool to anticipate, plan and rehearse these changes means empowering them to create a better living environment or world for themselves. They should rehearse how to solve the conflicts that arise from this fast change and help to shape a better world for the generations to come. Putting *VFT* in the hands of children and youth is an attempt to help them explore and democratize drama through technological tools.

2.3 Existing Drama and Expressing Tools

2.3.1 Collaborative Environments

Virtual Forum Theater builds upon research on Computer Supported Collaborative Learning (CSCL) (Koschman, 1996) environment, including Amy Bruckman's *Moose Crossing* and a Multi-user Virtual Environment (MUVE): Marina Bers's *Zora*. *Moose Crossing* (1998) provides an environment that encourages children to develop their own spaces composed of rich textual descriptions and compelling programmed interactions. *Zora* (2001) provides an environment where children can create interactive graphical and textual expressions of their sense of their own identities and values.

Bruckman's (1997) *Moose Crossing* is based on constructionism, CSCL, community support, and computer networks. Bruckman argues that "constructing things together helps to create a particularly special, supportive sort of community" (Bruckman, 1997, p.18) and that computer networks help create and spread constructionist cultures. In her work, children create their own rooms filled with objects and characters in a virtual space. The environment allows users to take fictional roles and pretend they are someone else.

In *Moose Crossing*, children describe via text the nature of the space, the characters, and the interaction. Children write small programs to guide interactions between characters. Because the children are both hosts of their own space and explorers of the overall space, they can interact with and view the descriptions of their colleagues' characters. In this way they contextualize examples of what was possible, and can improve the depth and beauty of description and interaction of their own constructions. They must write to participate, and can improve their writing through good examples, practice, and interaction. A conclusion of Bruckman's (1998) research is that online communities can provide a supportive context that makes new kinds of learning experiences possible; the learning facilitated by *Moose Crossing* is strongly tied with on-line collective peer support that it provides.

While VFT differs from *Moose Crossing*, because it does not have the goal for the children to program and the context is dramatization rather than social interaction, constructionism and on-line collaboration aspects are the same. Bruckman explored

open-ended features allowing children to construct anything they imagined, but at the same time she chose to use text; the *VFT* toolset allows audio and images, giving children other choices of expression.

The conceptual framework of Bers's (2001) *Zora* is also based on constructionism, and collaborative learning; she believes that identity is dynamically built concomitantly with contradictory values, and in the use of tools such as narrative, objects and technology to support youth learning about themselves and community. Bers explores a constructionist approach for identity learning.

Zora is a three-dimensional multi-user environment that engages learners in the design of a graphical virtual city and its social organization (Bers, 2001). People can build objects, characters and spaces representing the self and a virtual community in which personal values are grasped and put to test. Users are graphically represented by avatars with their own image.

The thrust of Bers's work is to explore domains not previously supported or studied in on-line environments – including concepts of identity and values – through the types of objects and descriptions children choose to use to define themselves to others within the context of the on-line environment. She combines children's creation of visual and textual representations, and facilitates interaction in a shared, on-line social space. Children are asked to think about how they could best represent their concepts of themselves, their identities, and their values. They then observe and interact with each other's spaces, to

better understand themselves and their peers. Bers (1999) concludes that it is important to investigate the role of technology in the development of the self, its personal and moral values, and not only in the learning of the sciences.

The work of both Bruckman and Bers contributes significantly to exploring how on-line collaborative environments can provide a better understanding of learning, particularly in fields not necessarily associated with computers and programming (literacy in the case of Bruckman and ethics, values, and identity in the case of Bers). The development of a better understanding and practice of social cooperation in a mediated environment is also key in their work: the participants need to propose, discuss, and decide collectively on how to legislate and regulate the activities within the environments.

Moose Crossing and *Zora* inspire the basic approach of *VFT*, though the aims of *VFT* are different. Bers's research focuses upon the self while *VFT* focuses upon social issues, the children start a discussion based on community problems. The goal is how to solve problems that initially are communal, but in reality affect every individual person in that community. *VFT* explores drama instead of storytelling and the on-line collaboration occurs in different ways, either through enactment of different solutions (dramatization) or on-line chatting.

2.3.2 Digital Drama

There have been several previous efforts in creating digital plays, including *Teatrix*, *Carmen's Bright IDEAS*, *Puppet Theatre of the Virtual World*, *Façade*, and *Videogames*

of the Oppressed. These are similar to VFT in many ways, but differ in freedoms granted to the children and how children interact with the tools.

Teatrix explores drama as a form of collaborative “make believe” for children. *Teatrix* is based on Drama-in-Education from Dorothy Heathcote (Bolton, 1988) and constructionist theory (Papert, 1991). The authors believe that to obtain a deeper and more engaging control of the dramatic plot, users should be able to inspect, disclose and modify the character’s mind (Machado et al, 2001B). They employ a sort of “Hot Seating” (a technique developed by Heathcote) where children freeze the action of a character, examine the character’s role, goals, and previous actions, reflect upon them, and make changes if necessary.

In *Teatrix*, children create storyboards of existing fairy tales. Children have some control over existing characters that are intelligent agents, but the environment, the creation and the problem solving capabilities, confines the learners to a very specific domain (Machado et al, 2000), and does not allow or emphasize internet interactions. *Teatrix* is part of the Networked Interactive Media in Schools (NIMIS) program in Europe and is being used in schools in Germany, England and Portugal (Teatrix, 2003).

In *Carmen’s Bright IDEAS* (Marsella et al, 2000), learners influence how a drama unfolds by controlling the intentions of one or more characters, who then behave in accordance with those intentions. The authors assume that:

“the learner's identification with the characters and the believability of their problems are central to the goals of having the learner fully interact with the drama, believe in the efficacy of the skills being employed in it and subsequently apply those skills in her own life.” (p. 301).

It explores the strategy of IDEAS where each letter represents a step: *Identify* a solvable problem, *Develop* possible solutions, *Evaluate* your options, and *Act* on your plan and *See* if it worked. This educational software is stand-alone and single user

The authors of *Carmen's Bright IDEAS* have specific goals to achieve in their teaching; therefore, they control the learning environment to make sure the user will learn the lesson they have planned. *Carmen's Bright IDEAS* is an interactive health intervention designed to increase the problem solving skills of mothers of pediatric cancer patients. It has gone into clinical trials at seven cancer research hospitals across the country and is in use at Children's Hospital in Los Angeles.

In the *Puppet Theatre of the Virtual World* (n.d.) young children can interact and play with life-like virtual playmates in a virtual 3D-world and learn how they can influence the reactions and behaviors of others through experimenting (taking) actions of their own choice. The *Theatre* includes a range of life-like characters with personalities specified by the child, which can allow full improvisations with emergent behaviors in developing stories (Scaife, 2000). This is a project from the European community on Experimental School Environment (1998); it was tested and deployed in some schools, but it is not being used anymore.

Façade (Dow, Mateas et al, 2007) is a more recent project involving AI, heavy on autonomous agents and also exploring natural language processing to place the player in a dramatic world. It is a conversation-centered interactive drama (Szila et al, 2007; Szila, 2005; Dow, Mateas et al, 2007). *Façade* (Façade, 2005) is a hybrid entertainment form – somewhere between a game and storytelling – where through conversation, movement and emotive gestures of AI agents, the player interacts with the characters. As all the others interface using AI, the settings are pre-existing and a player can not create her own.

Virtual Puppet Theatre and *Façade* (among others) explore the relationships between AI and theatre and therefore have limitations imposed by the state of technology. The children cannot control the avatars in totality, as the control is always shared with the machine. Intelligent agents are not like real puppets that can be completely manipulated by the children and have emotions also portrayed by children's voices.

Unlike the AI tools, *VFT* employs a different metaphor, involving animation. The children design their own production, create their dramatic plot in advance and have total control over it. The characters are like techno-puppets totally controlled by the child. In creating a *VFT digital performance* the children need to go through the experience of building their own characters, making them believable and learning all that is involved in this artistic and cognitive process.

2.3.3 Theater of the Oppressed and Theater-in-Education

Videogames of the Oppressed is a master's thesis from Gonzalo Frasca (2001) at Georgia Institute of Technology under the advising of Dr. Janet Murray. Videogames of the Oppressed was not implemented as a tool, but Gonzalo created several scenario cases exemplifying how the design of *The Sims* (2006) could be changed in order to empower its players to enhance critical thinking and discuss social and personal problems. The theoretical framework of Frasca's research is based on Theater of the Oppressed (Boal, 1974), Epic Theater (Brecht, 1964) and Pedagogy of the Oppressed (Freire, 1972). He believed that videogames could be designed as a mirror where players can look for answers for their lives; he hypothesized design strategies such as simulation for creating interactive videogames.

Living Newspaper (Sutton, 2005) is a project introduced in 2002 by an England Theatre-and-Education (TIE) company, Collar and TIE (C&T, 2007), with a similar metaphor to that of *VFT*. Its theoretical framework is based on TIE, Drama-in-Education (DIE) and directly inspired on the work from Winifred Ward. Sutton believes that the process of drama permeates the digital culture and particularly the immersive digital media. The creators intend *Living Newspaper* to give "a unique insight into the things that matter to young people – enabling them to articulate their thoughts, feelings and ideas about world events as they happen" (thelivingnewspaper, na). It allows children to create living newspapers through animation using images, cartoons and video. It provides a password-protected website where children can upload previously recorded narratives, previously

taken pictures, or a pre-made video clip into a library. They offer several content-creation techniques. A child can upload a narrative, give it a title, description, and author, and choose one image as cover. Alternatively, a child can choose to use the “camera voice” tool by uploading a soundtrack from the library, adding several images to create a sequence, and indicating for how long each image should be displayed. A “cartoon” is a silent animation where the child is encouraged to use Photoshop to twist images adding drawing to them. A “still image” is a combination of caption with only one image. “Video” allows the child to upload a video clip from the library and publish it in the site. The actions of adding images, creating sequences, and publishing work are done by clicking buttons or links in web pages. I do not know how the animation is created, but supposedly anyone can edit anyone else’s animation, according to the documentation present on the site. According to Shaughnessy, <http://thelivingnewspaper.net> uses “Real Player Video Streaming (e.g. for staged CCTV⁵ footage), Flash animation (for creating animated political cartoons) and chat rooms (for online improvisation of scripts).” (2005, pp.206).

As Paul Sutton describes on his PhD dissertation, it does not seem that editing each other living newspaper article is a major goal of this project; rather it is intended for dissemination of youth voice and criticism through out the www:

“However, in the age of the internet the livingnewspaper.com has reinvented the notion of what federated theatre activity might be, operating as a series of independent ‘cells’ in schools, youth theatres and communities across the globe, using digital media and websites as mechanisms for the global exchange of documentary drama materials....” (Sutton, 2005, pp. 130);

⁵ Closed Circuit TV

Therefore it differs from *VFT*, which strives for enabling collaboration for solving conflict issues and to create several versions of the same digital play. But the basic infrastructure of the *Living Newspaper* is similar to that of *Virtual Forum Theater*, because it implements on-line animations that can be edited and shared on-line by children; it also shares some of the goals to give voice to the children. According to Shaughnessy (2005) and Carrol et al (2006) the work of the *Living Newspaper* is an engaging and exciting way of doing theater for youth and they have successful stories of on-line collaboration to create documentaries and drama.

VFT goes a step further providing an environment that distinguishes between characters and allows separate developments of characters' lines, instead of simply enabling animation. *VFT* toolset allows all the dramatic production to be created using free-software tools instead of depending on proprietary ones such as Photoshop; therefore reaching lower-income children. Nevertheless projects such the *Living Newspaper* prove that authoring drama by youth on on-line collaborative environments is successful, foster learning of expression abilities and is engaging.

2.3.4. Online Role-Playing

Most of the existing commercial role-playing games on the Internet such as *Second Life* (2003), *SIMS* (2003), *Asheron's Call* (Turbine, 2004), *Shukuen: The Abduction* (Infinite Realities, 2003) have an existing theme where the drama takes place (Burrill, 2005). The user can create a character that suits the environment and the story-line. There is not much room for deviation or to create a completely new dramatic plot. The player cannot

create his or her own drama from scratch. *Authorship* is the main difference between *VFT* and on-line role-playing games. Role-playing games are not an environment of free expression, but of pretend play; a place where one can escape the stress of daily life, imagine and pretend that one is living in a medieval time or a paradise island. In that situation one can dress up and give a set of behaviors to an avatar and pretend to live that life through the created character. Since this is a make-believe situation there is not much space to work on daily issues or oppression. Quite the contrary, one wants to forget the real life problems and the game might become addictive (Burrill, 2005; Zizek, 1997). Role-playing games use heavy graphics and computational resources; some are based on Artificial Intelligence, and use autonomous agents.

VFT on the other hand has the goal of allowing children to act out (dramatize) real life problems in a safe environment in order to rehearse and find solutions for them. For this investigation, I chose not to use a 3-dimensional representation of characters or environment, so that children can focus on the scenarios and the characters' interactions, rather than on the appearance of the environment.

Burrill (2005) compares stand-alone computer games, video-games, virtual worlds and on-stage drama. He claims that some of them empower the player to be a director (such as *SIMS*), while others allow more of an actor role as in most of the web-based role-playing games. Some video-games provide a very restricted range of action centered upon "winning" or "losing," under the control of rigid narrative. He concludes that:

“digital code is an experience always already written, always already a discourse that must be rewritten and then reread, instead of, as in the case of live performance, created on the spot (no matter how rehearsed the performance may be).” (2005, p. 507).

VFT does not fall in the category above of “digital code being an experience already written”, because the learner creates her/his own digital code. The existing digital code helps the playwright to plan and animate her/his own story plot and characters while the tool translates her/his actions into a digital code. *VFT* per se is not a live performance with a live audience, but it allows live improvisations followed by the construction of the play using digital media.

2.3.5 Positive Youth Development and Positive Technology Development

Research on developmental systems theory emphasizes the inherent plasticity of human development, which means, the promise for systematic change throughout development. This possible change might occur as a consequence of interactions among the growing person and her biological, psychological, ecological (family, community, culture), and historical place (Lerner et al. 2005). These mutual interactions between the person and her community affect the plasticity of the brain and the development of the individual, regulating positive and negative growing behaviors, which suggests that there is always some potential for systematic change in behaviors improving human life (Lerner et al. 2005).

Based on this body of research, Lerner has been studying ways to improve youth development called *Positive Youth Development* (PYD). Lerner believes that there is an arrangement between the assets of an individual and the existing assets of the ecology of

human development and as a result, positive human development will be promoted. Furthermore the role older children and teenagers play in choosing what they will do and being the producers of their own development (Lerner, 2002) contributes to their cognitive variability growth. Applied developmental science researchers such as Kuhn & Franklin (2006) claim that the distinctions between development, learning and acquisition of expertise become less clear during the teenager phase.

In the nineties, researchers came up with meta-indicators to study *PYD*; initially four Cs, competence, confidence, connection and character were established by Little (1993) and later reviewed by Eccles, Gootman (2002), Roth and Brooks-Gunn (2003a, 2003b), and Lerner (2004) who proposed caring or compassion as a fifth C. Lerner also suggested that when the five Cs are present in a young individual and enacted by his/her, contribution emerges as sixth one. *Competence* is the positive view of one's actions; *connection* is the positive bonds with people and institutions; *character* is the respect for societal and cultural rules; *caring* is a sense of sympathy and empathy for others; and *contribution* is giving positively to self, family, community, and, ultimately, civil society (Lerner, 2004)

Bers (2006) extended her research on *Identity Construction Environments* (ICE) proposing a framework to design and evaluate technology-rich programs that promote positive youth development. Bers called this framework *Positive Technology Development (PTD)*, which is based on *PYD* and arose from the necessity to explore the use of technology on youth development programs and interventions to foster positive ways of youth growth (Bers, 2006). Bers proposed a six by six Cs model where

educational tools are designed with particular features to engage youth in behaviors to encourage personal abilities: *content creation* to promote *competence* in the use of technology; *creativity* to foster *confidence* in youth use of technology to create meaningful projects; *communication* in both synchronous and a-synchronous ways to sustain the establishment of network of *caring*; *collaboration* to allow *connection* among the community; *conduct* to get involved in ethically and morally responsible actions directed by *character* traits; and *community-building* to project and participate in environments where one can make positive *contributions* (Bers, 2007).

Content creation, creativity, communication, collaboration, conduct and *community-building* are design features of *PTD*' s educational tools that match with the six Cs of *PYD*. Bers (2007) advises that *PTD* learning environments should foster contributions to self and society.

VFT could be considered a kind of *Positive Technology Development (PTD)* (Bers , 2007) research that focuses on the contribution to self and by consequence to society by promoting the enhancement of argumentation skills and expressive fluency, but at the same time it focus on debate of social issues. *VFT* tries to accomplish the enhancement of self skills through the debate of meaningful social issues.

The map bellow explains how the four Cs of *PTD* exist on *VFT*, even though the features were not intentionally created to foster these four Cs:

Four Cs of PTD & PYD	VFT's Design Features	Activities allowed by VFT
Content Creation →	GUI story board	Team work to brainstorm and create a virtual

Competence <i>Expressive Fluency</i> <i>Argumentation skill</i> <i>Conflict Resolution</i>	Dramatic Faces	digital play Rehearsing the play of-line in order to take pictures Drawing the characters and scenery Creating characters by giving emotions to their own face images, or masked face images On-line play interventions to suggest alternative ways to solve the conflict presented by the virtual play
Creativity → Confidence <i>Expressive Fluency</i>	GUI Story Board Dramatic Faces Drawing Tool Sound recording	Mastering the creation of digital multimedia animations Of-line improvisations to develop script Having a product to display and be used by a virtual audience Being empowered by practicing several ways to solve a conflict
Collaboration → Connection <i>Argumentation skill</i> <i>Conflict Resolution</i>	VFT on-line chatting room VFT on-line play interventions	On-line chatting about the design of the digital play On-line chatting suggesting how to solve the issues presented by the play Child designed virtual plays used to generate discussion about social issues by changing specific actions of the plot in order to give alternative solution to the issues
Community-building → Contribution	Dramatic Faces Sound recording GUI Story Board	Expanding participation of youth to discuss social conflicts throughout the web; therefore contributing with solutions.

Figure 2.3: Four Cs of PYD & PTD on VFT's design features and activities

Some features of *VFT* match *content creation*, *creativity*, *collaboration* and *community-building*, therefore promoting *competence*, *confidence*, *connection* and *contribution*. I did not systematically implement the features to fit the four C's described above. Nor did I collect and interpret data to demonstrate these four Cs. Instead, I used the *PTD* survey designed by Bers (2006) in order to triangulate self-scored results from other surveys.

Chapter 3 *VFT*: Process, Toolset and Digital Performance

3.1 Introduction

VFT process encompasses the use of dramatic activities and *Theater of the Oppressed (TO)* techniques such as *Forum Theater (FT)* in order to create a digital or virtual play. During this process the children or teenagers also use digital media tools such as digital photography, digital drawing, digital video and the *VFT toolset*. Once the digital play is done and saved in the server, it is played back and seen by youth. This third part of *VFT* is called *VFT digital performance*; then the children and youth involved in this research generate responses through action in the form of another version of the digital play and or discussions on-line over actions between virtual “spect-actors”.

I planned a series of dramatic activities to prepare the participants for the forum discussions over the Internet, mediated the activities with the participants, and observed how they interacted among themselves and with *VFT toolset*⁶.

3.2 The Form of a *VFT* Play

There are a few ways in which children or youth can create and modify a *VFT* play. The choice depends on the hardware available and/or the intention of the playwright(s):

⁶ Anytime I use the term *VFT*, I refer to the process involved in creating the digital play and the collaborative interactions over the net. The term *VFT toolset* is used in reference to the educational computer software developed by myself.

- Audio and animated digital cartoon or photography faces that portray emotions.
- Audio and animated digital drawings.
- Audio and animated digitalized hand drawings.
- Audio and animated photos of children enacting their play.
- Video clips of children enacting their play.

As the children produce the play whether using video of improvisations or still pictures of their acting, they can be encouraged and guided by the face-to-face facilitator to use Brecht's acting technique. The *VFT toolset* includes "help" buttons that offer guidelines and an explanation of Brecht's acting techniques in accessible language.

VFT engages members of the virtual audience as active learners. They can stop the play at any time and create their own dramatic solution. Virtual "spect-actors" should not merely sit in front of a computer and watch the play; they should interrupt, debate, and rehearse action that modifies the original. The children (learners/users) critique the production on which they are collaborating. They decide if their production holds together and is faithful to reality and, if not, they modify or adjust it. The plot needs to be engaging, but there does not have to be a definite structure for the play. The play can have a plot and a well-defined Aristotelian dramatic structure, or it can be non-linear and have a Brechtian epic style, even though the technology of *VFT* encourages the creation of non-linear play structure. An engaging plot captures the attention and the involvement of the virtual "spect-actors." The plot should motivate the child well enough in order for

him or her to desire to interact with the play and change the course of action (see plot on page 12 for an example or Appendix 4).

Boal (1984) created *Forum Theater (FT)* as a technique of *Theater of the Oppressed (TO)*. *VFT* employs most of the techniques of *FT*: collaborative playwriting, group enacting, character replacements, proposal of alternative actions and problem resolution. Groups of children get together to discuss, plan and create a digital play around a common issue they choose to reflect upon. *FT* as well as Improv Theater might be used for playwrighting, in the same way, *VFT* can also be used as an on-line collaborative playwright editing tool.

3.3. The VFT Toolset

VFT was developed using the Java programming language in order to be available on the WWW at no cost. It consists of two main modules: Storyboarding and Dramatic Face, all of which have a Graphical User Interfaces (GUI). Storyboarding allows children to choose the character images that make up a scene, to move them to an area on the screen where they create a sequence of images, to write character lines for the sequence, and to record character lines in audio form (speeches). Children create one scene at a time. Each scene is composed of sequences of images and character lines. The images might be of any kind, including the children enacting the play or images of dramatic faces. The process of storyboarding often includes activities in which the children improvise their

play and act it out. Backdrops can always be added as part of the scenario when the children take pictures of their own enacted play.

As shown in Figure 3.1, the gallery of images is displayed below a “blackboard” where each image sequence is produced. To create a sequence, the playwright drags each image to the blackboard, dropping the chosen image to an appropriate location on the “Sequence Storyboard” (top area of the blackboard). After putting all the images into sequence, the playwright can record the spoken lines of each character who appears in the sequence by pressing “Record Sound” button⁷ located on the left top of the screen. The amplitude of each sound (line) and the time for which each image is shown are plotted on the blackboard. The time that an image appears and is replaced can be adjusted in order to better synchronize speech and image. The playwright can choose and drag the blue time

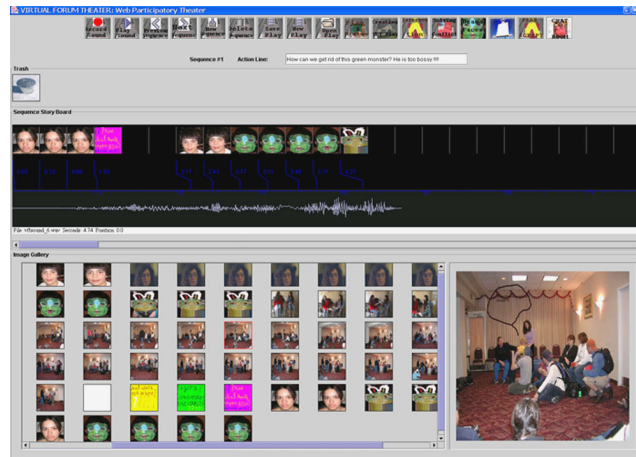


Figure 3.1: VFT GUI Storyboard

⁷ The buttons to open or save a play are on the top of the screen together with other options such as delete a sequence, move to a previous or next sequence, create a new sequence, go to Dramatic Faces module or Real One and to get support about how to use VFT. If one wants any image to show up bigger on the right side of the gallery of images, one just needs to click on the image. There is also a trash option for when one drops the wrong image in the sequence, in which case that image should be dragged and dropped into the trash.

bar indicating the start time for an image with the mouse, to adjust the start time of the image in the animation.

The Storyboard application also allows a different playwright to open and edit an existing play. The digital play is usually edited at the point where the playwright asks for feedback. This feedback point is called the intervention frame which is a scanned hand drawing or a digital one. The intervention frame is added into the sequence as any other still image and the learner decides how long he or she wants the frame to be displayed. The virtual “spect-actor” opens a scene and substitutes images, lines and/or texts, changing the action, ideally at the intervention frame or the moment he or she disagrees with the solution provided by the original playwright. The *VFT toolset* also:

- Allows listening to the recording and recording it over if needed.
- Allows timing the images with the sound track.
- Allows saving play both in local driver and in the server.
- Allows saving any number of versions for each play.
- Calls a drawing tool to allow creation of hand-drawn images.
- Connects to a chat room.
- Calls Real One to execute the play that is open in the VFT interface.

The *Dramatic Face* program allows children to create emotional expressions (e.g., sad, happy, angry, disgusted) by using the mouse to manipulate the mouth, eyes, and eyebrows of a given (perhaps neutral) face. There are three options within the Dramatic Face module: (1) The children can take pictures of their own masked faces (they would

cover their faces with pre-made masks) and create new expressions by manipulating the masked face; (2) if they prefer, they can take pictures of their own faces and give emotions to them via graphical manipulation of the image of their face; (3) they can draw a face and use Dramatic Faces to manipulate the cartoon drawing. Alternatives are available in order to provide several artistic entry points for the children and to provide options that avoid legal issues or privacy concerns about posting children's images on the web.

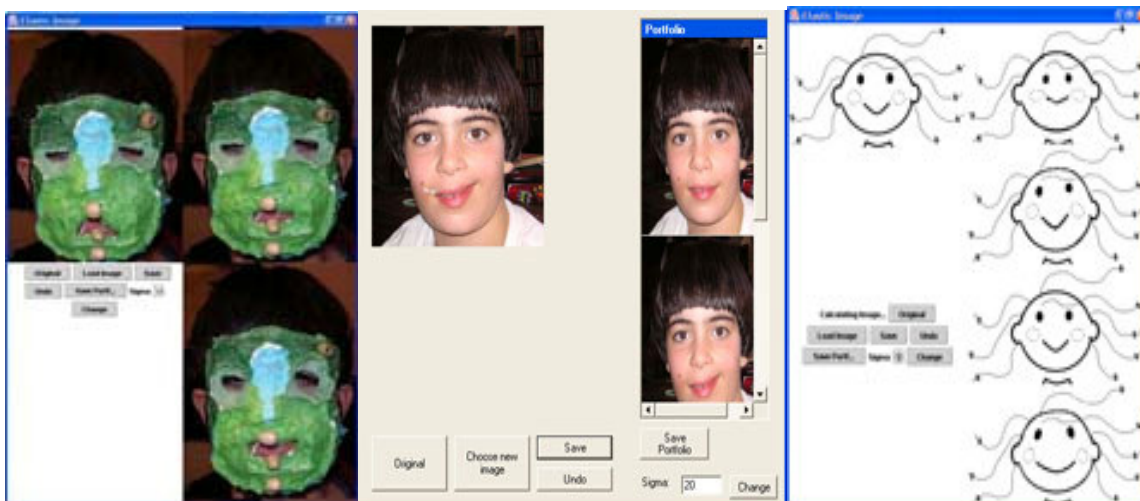


Figure 3.2: Three variations of the Dramatic Face Module

The design of *VFT* toolset is open-ended, allowing for any kind of play to be created. The interface is designed to be simple so that children as young as six years old can use it without difficulty. However, the kinds of story lines children might choose to explore are dependent upon where they are in their emotional and cognitive development and their understanding of the complexities of personal and global social issues. The developmental research of Piaget (1977) and Kegan (1995) demonstrates that children do not become fully aware of social issues until close to age ten or eleven; these age markers are not absolute. Several influences, from culture to personal ability, play a role in child

development. Our experience shows that using *VFT* as a tool to address oppression or any other large social issue with children younger than eleven might not be productive. However, another kind of play can be explored with children between the ages of seven and ten. During this age period, children seem to be more engaged in fantasy-like stories with some ties to reality. Their stories are created very much from a personal and egocentric point of view (Piaget, 1977). Therefore, *VFT* can be an effective tool to support both older and younger children's creation of dramatic pieces through collaboration, which underscores team work, as well as aiding them in developing argumentation and dramatic narrative skills.

While the study of *VFT* toolset with children has specific learning goals, there are no built-in limitations that limit *VFT* to specific kinds of drama or learning objectives. As a free on-line tool, in contrast to high-cost software such as Director, the *VFT* toolset can reach a much broader community willing to explore any dramatic plot. As a free web-based educational tool, *VFT* might grow and perhaps be utilized with goals different from the original ones, in the same way that Boal claimed that the techniques of *Forum Theater* are being used in regular drama activities in schools and colleges, and even in corporations that need to work on better communication and relationships between management and staff⁸.

When creating a digital play using *VFT* toolset, the children add pauses at the points where they want the audience to suggest solutions or reflections. They might want to add a question (see figure 3.1). This is one way to minimize empathy (Brecht, 1964) with the

⁸ Delivered by Boal during the workshop in Omaha in 2004.

characters by allowing more interactions between the audience and the playwrights. The pause or intervention frame can also be considered the “virtual joker” of *VFT*.

The virtual “spect-actors” might prefer not to change the play themselves, but might prefer to request a modification. Sometimes the proper technological resources may not be available for an interaction. For example, they might not have a web-cam or a digital still camera, and they might not have the time or skills to edit the play using drawings of characters or faces. Hence, it might work better for the virtual “spect-actors” to give instructions to the group that created the play on how to change action through text using a web chat. Meaningful interaction between the virtual participants will facilitate the process and thus promote effective learning.

At present *VFT* needs to be installed on each personal computer while the server houses the library of digital plays, images and sound files. One needs to use a username and password to initiate the java application, so that the identification of the learner can be passed to the server through the files she will create or modify, and also to secure access to the server. The actual model requires that groups physically apart establish a time to encounter on-line which can be done through on-line chat or e-mail. Once a person logs on to the chat, she receives a message of who else is also on-line.

In Brazil there are community centers in most of the disadvantaged neighborhoods that provide free access to the Internet. Some of them provide free access to multimedia such as recording and adequate computer memory to process large files such as images and

sounds. *VFT* was designed to use few resources and offers options such as writing a character's line instead of recording it, or chatting to discuss a play, instead of using digital images to modify an existing play. This allows its use in such community centers for free. *VFT* might expand the audience of "spect-actors" and learners because it can reach any number of people at a given time in any part of the world.

I explore the passion children have for technology and propose a virtual form of theater to expand the connection with drama, digital art, enhance argumentation and expression skills. As McLuhan said "Today, via electronic means, the coexistence of cultures and of all phases of process in media development offers to mankind, for the first time, a means of liberation from the sensory enslavement of particular media in specialized phases of their development." (2003, pp. 6).

3.4 Design Principles, Guidelines and "Affordances"

I designed the toolset with several design principles in mind:

- It should be easy to manipulate and create digital animations with some degree of voice and image synchronization
- It should be possible to explore digital image, digital sound and animation principles in order to create any kind of digital play
- It should be possible to explore twisting photographic images of a face to maintain anonymity and explore facial dramatization
- It should allow exploration of issues of conflict and or oppression present in children and youth lives.

The toolset provide a set of guidelines to inform the learner on how to proceed with the tool. There are buttons that display html pages with “instruction” explaining how to create a virtual play using *VFT toolset*, how to intervene and solve conflicts using the *VFT toolset*, and the possible structures that can be used when creating the play plot (see appendix 5).

The *VFT toolset* enables several affordances discussed in Chapter 7 and 8, the most important of which are:

- The creation of “an object to enact with and to argue about.”
- Creation of a safe digital environment simulating personal and social oppressive situations.
- Generation of discussions and reflections about conflicting issues such as social injustice and oppression.
- Encouragement to think on how to express these conflicts artistically through media.

3.5 Intervention in *VFT*

VFT offers a different conception of intervention than that of Boal’s *FT*. *FT*’s intervention allows the “spect-actor” to go on stage to enact the desired solution. Once the “spect-actor” is on stage, the action is carried out until he or she wants to step out or until the original play is finished. This intervention can be of a long or short duration. Unlike *FT*, *VFT* allows multiple interventions because of the play’s digital aspect. The virtual “spect-actor” can interrupt the play at different points, and does not even need to carry out the intervention until the play is finished. In *VFT*, intervention resembles

editing a written text rather than carrying out a live action while other live actors try to provide opposition or firmly portray their own goals. In the virtual realm, the “spect-actor” can step in and out at any desired moment because he or she is controlling the whole action without any opposing influence. He or she is responsible not only for his or her own actions when taking over the part of the character, but also for changing interactions between that character and other characters in the sequence. Eventually, the change as a whole might not work well and might seem unrealistic, since in *VFT* it is up to only one person (or group) to modify a section of the play.

Changing the action without an adversary (opposing character) also changes the experience, on one hand the learner will have more time to reflect over the change which is positive, but on the other the conflict might disappear as magic and several interactions (several versions of the same play) among the virtual “spect-actors” might be necessary to fix the issue being modified (to really solve the conflict and not to make it disappear). The disappearance of the conflict/oppression becomes a reason for the debate among the active virtual audience and this virtual debate accompanied by changes takes the place of the live adversary.

Ideally, interruptions in the virtual play take place at moments proposed by the playwright, who might create intervention frames (more at *VFT toolset* section) asking for feedback such the one on Figure 3.3 that says “Is this aggressive attitude normal and correct? What would you do if you were the nerd student?” The playwrights (children) decide what kind of feedback they need, exactly where in the play they should include the

intervention and for how long that frame should be displayed, so that the virtual “spect-actors” have enough time to reflect on it.

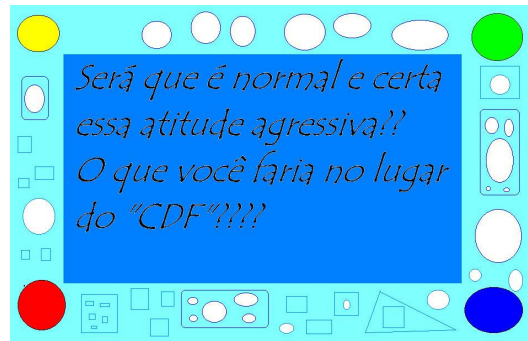


Figure 3.3: An Intervention Frame

3.6 An Intervention Example

During my last study in the fall of 2006, a *VFT* play was created by one group of teenagers and watched by two other groups of different ages. The eleven years old group improvised the same plot creating their unique response to the issues while the teenagers improvised a totally new plot portraying the same kind of conflict while delivering their own solution to it. A snapshot of the original play and its intervention (response) created by Kabum’s children and Aplicação’s teens are described below:

*PATRICINHA*⁹: Eee, this little black one meddles in everything!

NEGUINHA: This is crime, you know? I’m going to advocate for my rights. My lawyer will look for you.

MAURICINHO: Shut up, [you are] unbearable!

INTERVENTION FRAME 1 (Virtual Joker): What would you do if you were in the role of this discriminated student?

TEACHER: (to the class). Yes, it is one page, if you return today, but two pages if you return tomorrow at the beginning of the class.

⁹ Patricinha is a nickname for girls who are frivolous, Mauricinho are frivolous boys and Neguinha is a diminutive for black girl or woman (most of the times it is a lovely nickname).

FAROFA: I'm not going to do anything; neither today nor tomorrow.
NEGUINHA: Farofa, you are a good person, but you never want to do anything!
MARIA LUIZA: Teacher, I am not being able to concentrate.
TEACHER: Farofa, you are going to the principal's office now!
FAROFA: take me out of here, crazy?
INTERVENTION FRAME 2 (Virtual Joker): How would you react if you were in the role of the teacher?
TEACHER: Maria Luiza, go call the principal, please?
Maria Luiza: only if it is now, teacher?
FAROFA: I am going out, because someone is calling me out there and not because you are ordering me!
 (Bell rings)
TEACHER: I will come back for the essays after the break!
MAURICINHO: Hey my friend, let's drink a juice?
NERD: No, I don't want.
MAURICINHO: Yes, you will. Look, get against the wall; you will write my essay and give it to me tomorrow morning, and if you don't do it, I beat you up, see?
INTERVENTION FRAME 3 (Virtual Joker): Is this aggressive attitude normal and correct? What would you do if you were the nerd student?

Note in the previous excerpt how the intervention frames correspond to moments of conflict, and how the spectators are encouraged to "take action" by changing the responses of characters in the situation. Several potential actions are already obvious from context, but the consequences of those actions are not yet presented.

Kabum's group response to racial discrimination (Intervention Frame 1)

NEGUINHA: I did it teacher.
MAURICINHO: Shut up, unbearable!
NEGUINHA: Patricia, can I borrow your pen?
PATRICINHA: I don't lend my pen to dark skin people.
NEGUINHA: I am proud of my black skin, you are white on the outside, but inside we are all equal. We should respect each other.

The response was that of equity, rather than divisiveness.

Kabums's group response to the bullying (Intervention Frame 3)

MAURICINHO: Look, I want you to write my essay for tomorrow morning and if you don't do it, I break your face.
NERD: Ok, I do it!

NERD: (to himself). I will tell the principal that he is threatening me [and trying to force me] to do his essay!

This response was that of passiveness but commitment to a deeper change at the level of seeking reparations.

Aplicação's group response (2nd teenager's group)

PAGODE STUDENT 1: on the floor, on the floor, show it Mr. Barbosa, on the floor show it (rhymes of a "pagode" music, a Brazilian music style)

There come the crazy rock-em-roll guys, man!

PAGODE STUDENT 2: There comes the man in black, look?

ROCK STUDENT 3: These pagodeiros are a group of freaks!

ROCK STUDENT 4: And don't know how to do anything, but to swing down to the floor.

PAGODE STUDENT 2: How is it? Who is a freak here, brother?

ROCK STUDENT 3: Shut up or I will smash you, gay!

ROCK STUDENT 5: That it is, to really smash you!

PAGODE STUDENT 2: What is it?

PAGODE STUDENT 6: Calm down you all, we are for peace!

PAGODE STUDENT 1 and 2: And everybody ask for peace, and the white dove flew, flew (rhyme of a "pagode" music)

PAGODE STUDENT 6: Let's have consciousness man, we enjoy ours, they enjoy theirs. Let's finish with this dispute, you know?

ROCK STUDENT 3: Man, I am not obliged to like what you like, you know? I have no interest in your music, but I need to respect, get it?

PAGODE STUDENT 2: That is it!

ROCK STUDENT 5: you said it, you said it!

They all clap hands and greet each other.

ROCK STUDENT 5: Yeah, girls!

This new dimension of intervention does not eliminate the spontaneity between the virtual "spect-actors" if they are interacting through on-line chats, since their responses are immediate. If they have to edit a play off-line their responses might still be spontaneous (generated once on the spot) unless they decide to improvise their responses a few times before transforming it into digital form (in the example above, both groups improvised their response only once in a spontaneously way). Virtual interaction has a

different meaning, it eliminates real time emotions and attached immersion among the groups who interact on-line (Turkle, 1995), but face-to-face interaction still exists among the group creating or editing the virtual play.

Taking new pictures, videotaping, creating new characters through drawings, or using existing images of characters and emotion masks all require off-line time to prepare and edit for good expression; therefore *VFT*'s intervention requires that one group wait until an other finishes its intervention by editing the play and posting it back on the web-site. If the original playwrights need faster feedback, or the group watching cannot take the time to complete an elaborate intervention, the two groups can interact through web-chat.

3.7 Brecht and *VFT*

Cartoon faces (Ekman, 1975) can serve the same purpose as Brecht's "gestus"; to portray emotion or feelings. There is a parallel between *cartoon faces* and the universally known traditional theater masks of sad and happy. These drawings are two dimensional, since they are visual artifacts and abstract icons. The *cartoon faces* ought to be universal, and should have the same meaning to every participant who chooses to use them. *Cartoon faces* can represent sadness, happiness, anger, surprise, disgust and fear (Ekman, 1975). These masks can be thought of as equivalent to Brecht's "gestus" as the mechanism to make the character's inner emotion outwardly and universally known.

In *Virtual Forum Theater*, children's emotions portrayed through dramatic cartoon faces remain purposefully mediated and artificial, resembling Brecht's external acting. The perceived realism of three dimensional characters might make the learner forget that he or she is in charge, and it could induce catharsis (the spiritual cleansing of the spectator through fear and pity) by allowing over-identification and too much empathy with the virtual characters¹⁰. In my model, the virtual dramatic play is a representation of reality and not reality itself, so that the child is aware of his or her active role in the play.

VFT uses a media player such as Real One, which can be enabled via a web browser or locally in an independent display window. The screening of the digital play on a computer window might be considered a parallel to the projection of images and films on big screens situated backstage, to achieve Brecht's alienation effect. For *VFT*, this display window might support the detachment of the virtual spectator, working as a technique of intervention. It might behave as a vehicle to prevent the audience from empathizing completely with the characters. Its own nature of non-physical presence might decrease the realism of the characters and the play. The play presented on the computer display window consists of an animation of still images. When animations through drawings are used, then there is a puppet effect which makes the complete identification difficult.

¹⁰ The identification of the spectators with the character provides them with sensations and draws them into a story, making them feel part of it and sharing their experience with the characters (Brecht, 1964). Brecht seeks to minimize the empathy (becoming other) of the spectator with the character in order to facilitate the critical view of the character's actions. According to Brecht, Aristotelian catharsis almost eliminates any of the audience's critical perspective and capacity for action.

When animations of characters are portrayed by the children images, then the player display window is the only medium that decreases empathy.

Another dissociation factor is that the children are in a room with a computer while seeing peers or their digital representations in another location. There may be a tendency for the virtual spectators to identify with their peers located in another space; however, the external acting techniques, the view of the play through a small screen, and the cues to intervene might keep this young audience alert and ready to propose different solutions. When the play provides some identification, but at the same time deep critical thinking, allowing the children to move in and out of the situation by being engaged and reflecting on it, then learning is facilitated by the virtual play.

3.8 *VFT* is a Different Form of Forum Theater

Since the medium of *VFT* is the internet, the message of a *VFT* play might emerge differently from the one delivered on the stage, even though the intention of the message is the same. The reception of the message varies within individuals. For some, the experience of watching an actor on stage delivering the message might have a stronger effect than receiving the same message through the actor's voice (radio or internet) or through voice and image (film, TV or internet); therefore the sequence in which one processes the received message depends on the medium as well (McLuhan, 2003).

VFT toolset was conceived to extend face-to-face dramatic activities and provide dramatic interaction among physically separated groups of children. *VFT toolset* is a different form of *Forum Theater* with different expected outcomes. The digital animation limits the amount of images and one loses the details of facial and body expression one gets from live theater; therefore it implies that *VFT toolset* does not provide the same choices of visual impacts and interactions as live *FT* since the digital media presents a limitation by itself.

Some basic differences between *FT* and *VFT* play formats are explored in the next few paragraphs in order to clarify the new grounds of *VFT* and the intrinsic divergences between on-line and physical theater. *VFT* is meant to be a distant theater; one of its goals is to link communities of youth who are spread around the globe and unite them by means of an active discussion through action.

The non-physical character of the internet allows one virtual “spect-actor” (either an individual or a group) to be responsible for the action of more than one character. If the virtual “spect-actor” changes the action of the antagonist so that oppression or conflict disappears, the play loses its realistic and *Theater of the Oppressed (TO)* (Boal, 1974) thread; this is why a *VFT* play might need to go through some permutations in order not to lose its original conflict. It is one way in which *VFT* departs from *FT* and puts power in the hands of the children who need to collaborate through the Internet in order to have a working and engaging play.

The protagonist in *Forum Theater* usually is an oppressed character who wants to change his or her situation or condition. The “spect-actor” should only replace the protagonist in order to shed some light on his issue (Schutzman & Cohen-Cruz, 1994). According to Boal, it might “become magic” when the antagonist, who usually is the oppressor, is replaced (because the oppression might vanish as if by magic), and in this case one is not doing *FT* anymore, but role-playing¹¹. *VFT* toolset does not limit the replacement to the protagonist or any other character because of the inherent freedom of the tool, and because it is important to explore several points of view, allowing the children to collaborate towards a final piece.

According to Schutzman (1994), the concept of multiple protagonists in the same forum has become more common. Many practitioners have also experimented with replacement of the antagonist (either to explore the sensibility of the oppressor or because the audience members identify with the antagonist). One could argue that *VFT* might lose some of *Theater of the Oppressed’s* (TO) characteristics, but its goal is to create an opportunity for learning where children can express ideas, exchange points of view, search for different ways of solving a problem, and debate issues of justice where appropriate. *VFT* enhances learning skills and it can be geared towards a critical appraisal of issues of inequality.

¹¹ Notes from Boal’s lecture at Pedagogy and Theatre of the Oppressed Conference at Omaha in April 2004 (<http://www.unomaha.edu/~pto/>)

3.9 Ways that *VFT* can be Used

VFT could be used in conjunction with creative drama in schools or community centers. If there is a drama teacher, she may guide the children to create an improvisational play which blends playmaking and Boal's *Theater of the Oppressed (TO)* techniques such as *FT*. Once they have parts of their script ready they can create the same play using *VFT* toolset. They may choose not to use written text, but the teacher has the option of incorporating specific writing goals into the *VFT* process. In this situation the teacher's leading role is important for keeping the children engaged and for deepening their learning just as a facilitator would do.

The drama teacher should keep in mind that the main goal of *VFT* is to allow the students to discuss solutions through action and share their points of view with other groups of students. In other words to connect students from other regions of the city, country, or planet in search of diverse opinions; therefore she should strive to find other groups to see and share the digital play of her students on the virtual stage.

VFT could also be used in many other ways, including as a collaborative tool for young playwrights, or as a tool to help a person who does not know how to solve a personal problem by helping him or her figure out diverse ways of solving the conflict through on-line interactions. Ideally the audience of *VFT* would be children from poor and at-risk communities, but ultimately the process can engage any school-aged children, including the shyest ones.

VFT's performance is delivered on Real One or Ambulant Player through the Internet and the call for audience feedback is controlled by the intervention frames which are the “virtual jokers” and characterize the virtual forum. However, *VFT* benefits from the figure of a facilitator or mentor as the person who works with the children, supporting them in the learning and organizational processes. The facilitator's role is to encourage and engage children in creating their own plays portraying their community or personal issues. The facilitator needs to be well-versed in Drama-in-Education (Heathcote, 1984) and ideally know some *FT*.

VFT could also be used by children working on their own without the presence of a facilitator. In this scenario children might organize themselves so that one or two may lead the process (an organic facilitator may emerge). Alone children might generate a less rich, textured, or organized project, and be less directed than a facilitated group. In such a case the young playwrights should be able to regulate, modify, and improve their play through a collaborative interaction with other children virtually connected to them.

VFT's performance is enabled by the Internet and its pace and interruptions are defined by the playwrights. This means that the learning is all in the hands of the children using it, and they need to acquire the skills of playwright, actor, director, and facilitator in order to develop an effective, realistic and engaging *VFT* play.

Chapter 4 - Developing *VFT* with Java

4.1 Introduction

A big part of my research was to develop a free web-based software to enable dramatic activities. The software should allow creation of a digital play and support learning of expressive fluency, argumentation and conflict resolution skills. This was a complex software package with many capabilities and needs for interoperability with other software, including drawing packages and media players. Thus the design and implementation of this software was non-trivial and a major task in completing the research.

4.2 Requirements

Requirements for the software changed over time as the design was informed by several hands-on studies involving youth. The initial requirements were used in the design of the first prototype.

The *VFT toolset* should provide an environment where the learner can record character lines, upload or download images from/to an image gallery, or put images and sound into a sequence combining them in order to create a digital animation. The images can be pictures taken of participants, or hand/digital drawings portraying characters; therefore it is necessary to have a drawing tool available. The sequences are created in order by the

learner and when saved, the tool combines them together into a file. That file comprises the digital play, and can be viewed through a media Player.

It should be easy to delete images from sequences and re-record character lines. One sequence should contain one sound file with the recording of one or more character lines (when the characters are interacting with each other) and several images. The minimum number of images desired for a smooth animation is three images per second. The tool run on a server and the images and sound should be saved in a central repository, so learners can share images and easily open each other plays. Any time a play is edited by a person, who is not the author, it is saved as a new version.

The *VFT toolset* should have a nice graphical user interface with 3-D images buttons, and should also have help screens containing guidelines describing its use. The initial idea was to look for a free-software drawing tool and player.

While the above described initial requirements, several adjustments were made as research proceeded. For example, insufficient infrastructure was available at the study sites for use of the server, and restrictions upon networking kept clients from connecting to the server. Thus the final tool was a standalone product that did not depend upon a central server. The way the design changed over time is documented in the following sections.

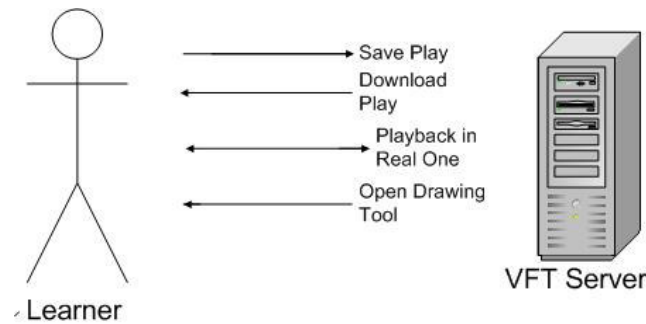


Figure 4.1: Initial VFT Requirements

When planning for desired features, I wanted to have dramatic faces or masks that could accompany a drawn character in order to make his/her emotions clear to all. From this wish, the Dramatic Face concept was born. Pre-existing faces in two or three dimensions should be available at a gallery of images and a learner can give emotions to them. We thought at the time that Dramatic Face would be needed to hide the identities of participants and to help them overcome shyness; this turned out not to be the case during the studies.

4.3 Why Java

Sun Java is an object-oriented programming language that is freely available to download and use. Java programming can be characterized as communication among objects. An object can be considered as a bundle of procedures and data, and all processes can be described as a result of messages being sent to objects. Objects have methods that implement their behavior, including how they should respond to the messages they receive (even though Java is not really implemented by message-passing, this is how one reasons when using it).

Like most of the pure object-oriented languages, Java has an intuitive framework, but presents a programming paradigm shift for anybody who has solid procedural programming knowledge. Programming Languages were born as procedural, and computer science courses used to initiate their students under the procedural paradigm. Research has shown that once the learner gets acquainted with procedural language, the transition to an object oriented one becomes more difficult (Decker, 2003) and the programmer becomes a novice again (Campbell, 1992). Today there is a tendency to teach Java and object-oriented design in the first Computer Science (CS1) course (Decker, 2003).

I chose Java to implement *VFT*, because Java programs can execute in web browsers and (unlike other languages for web browsers), Java is powerful enough to allow all the functionality initially planned for *VFT*. Java's power comes from its object-oriented design, which supports more complex interactions than for similar-length programs written using procedural design. It allows the implementation of media and internet protocols and includes a large library of supporting software. It has a disadvantage of requiring more processing time for programs, but this did not impede its use in this case.

4.4 Planning Phase

The first step was to write down the initial requirements I had idealized for the tool. Since the clients would be children and teenagers, I defined the requirements (see 4.2), but I had to perform a user test as soon as I had a workable prototype. I followed the literature on Human-Computer Interaction (Shneiderman, 1992) in order to create a preliminary

study and specification with a colleague, as a project in the course COMP 171: Human-Computer Interaction. We created a quick (non-functional) prototype describing the main screen for the idealized application. This initial design was later modified to enable more and different kinds of interaction.

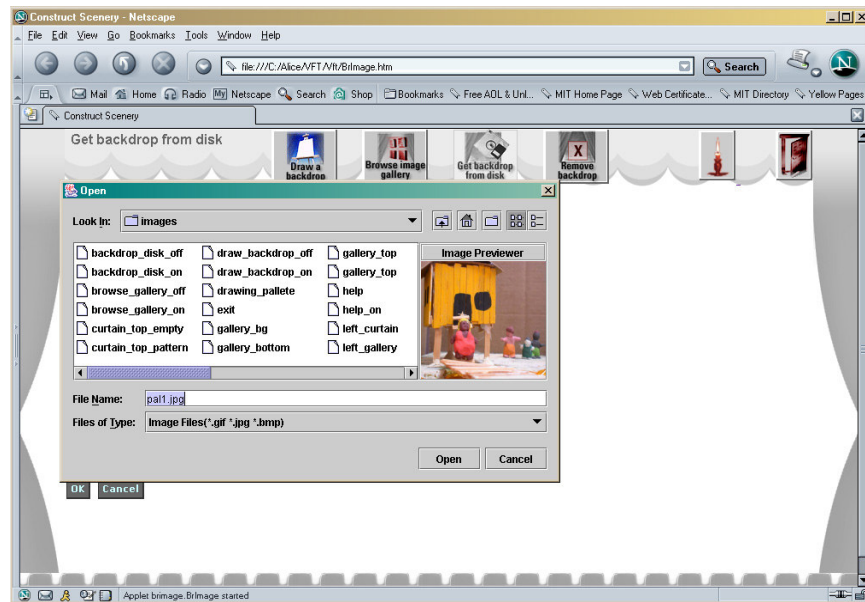


Figure 4.2: 1st mockup of VFT in JavaScript

My next task was to create a GUI skeleton to house the idealized tool. This first GUI interface was not used (figure 4.3), but it was important to my learning process and visualization of tool while thinking about its design. For building this prototype I chose JBuilder, a proprietary development environment from Borland, to facilitate the learning curve for using Java.

This prototype was extended over time to contain the planned features of the finished tool, including image sequencing, sound recording, and face creation.

Playing the animation was also essential for visualization of the virtual play, but because there were a couple of free media players available that were suitable for playing animations, I chose to use Real One and not to spend time developing one from scratch.

With these basic design features in mind, I needed to decide which media format to use for the animation. Research in summer of 2003 brought me to consider the Synchronized Multimedia Integration Language (SMIL) (Synchronized Multimedia, 2007), in which time was a new scripting language. It allowed combining slide presentations such as PowerPoint, animations and even movie clips without the need for any proprietary software.

In the summer of 2003, when I started to dive into Java and researched the scope of freeware tools, I found some free software drawing tools that would save the drawing as a SVG file. I was about to start creating a “Player” application when I discovered Real Player compatibilities with SMIL and SVG files. With the guidance of my advisor, Prof. Couch I decided that this technology should be used for *Virtual Forum Theater* and I should not implement a player.

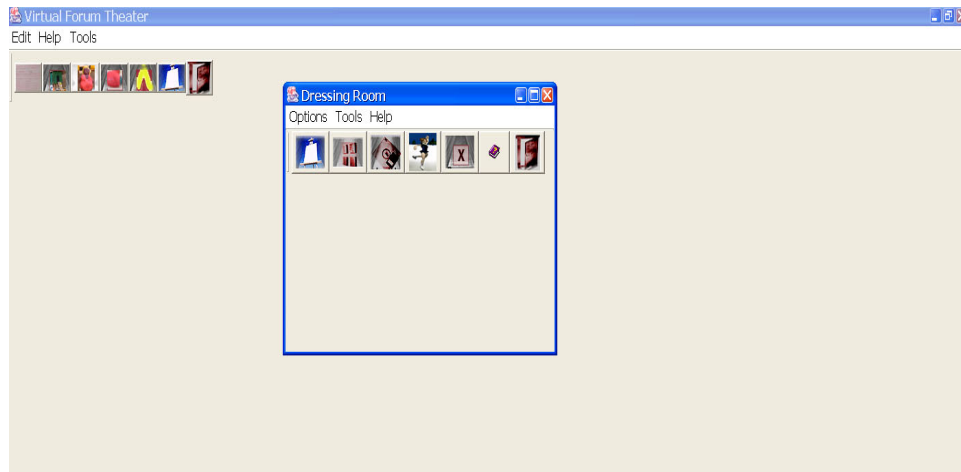


Figure 4.3: 1st VFT GUI in Java

The last piece of development was the web-based server component. I had to be able to save the SMIL files on a web-server, creating a gallery of virtual plays and images that should be re-used by the participants. I will describe each one of these features in detail in the next sections.

4.5 Dramatic Faces: A Java-based Environment

I had concerns with portraying emotions and how that could be difficult through drawings. The children could become embarrassed with their drawings, might not be willing to post them on the web, and perhaps would not be able to portray the emotions that they really want to depict. They would mainly rely on voices to express emotions. I wanted to be able to offer some pre-drawn icon masks that could be displayed by the side of the character in order to emphasize the desired emotion. I realized that I needed to offer a simpler way for creating a digital play. Prof. Couch suggested a simpler idea for putting together a digital play. He thought of a radio theater where the emotions are

portrayed solely by the character's voices. The design and implementation of Dramatic Faces – initially called Elastic Faces – was also intended as a way for me to learn and become acquainted with Java.

In this environment layer, children animate frames of faces that represent a character. There are neither scenarios nor props; just the animation of the face expressing the emotions of the character. For each character, children have a standard face that they can manipulate to create emotions. I started building this tool through the spring semester of 2004 as an independent study project.

Research (Fridja, 1986) shows that facial expression adds another layer to each voice's intonation. I had to find out how much association between voice intonation and facial expression the children might explore and use in their digital play. I wanted to discover what they might do when the character is portraying irony or sarcasm in their voices. Which would be the faces to match these emotions? I also wanted to find out if providing layers in *Virtual Forum Theater (VFT)* is useful for the children, or if they would prefer to use just the video component of it. I took into account that there would be children who would not have access to video or still digital cameras and therefore the Dramatic Faces or the drawing tool would be necessary for them to create their digital play.

Virtual Forum Theater was conceived as having four ways to create a digital play. The first one might use Dramatic Faces in conjunction with recorded characters' speeches. The second one might animate computer or hand drawings of characters' with recording.

The third one might use pictures of the play and animate them with voices and/or text. The fourth one might include video-taping the play rehearsal. In the case of still pictures or video of children's enactment, they could use masks on their faces to maintain anonymity if so desired.

I thought about generating a face that could react to mouse movements by stretching facial features like "rubber bands." In that way the learner could tweak the appearance of eyes, eyebrows, mouth, ears and nose in order to create emotions such as happy, sad, or surprised, as well as to portray yelling or talking (lips moving). I wanted to be able to represent each face as an SVG file, based upon coordinates representing the image (2D or 3D). With that in mind I implemented a model of coordinates, segments and geometric shapes like circle, semicircle, and square.

4.5.1 Initial Architecture

Initially I created the classes `ElasticFace`, `Smiley`, `Face`, `Segment`, `Coord`, `Circle`, `Semicircle`, and `Square` (elements to make the parts of the face). `ElasticFace` was the main class and all the mouse action processes, the drawing of parts of the face (eye, nose, ears, lips, etc) were members of the main class. I was not making much use of Java's object model inheritance because the methods were not defined at lower level where they belonged. The face parts, outline, and eyes were drawn by calling a `Segment` constructor with `Circle` as argument. Another `Segment` constructor with `Semicircle` as argument drew eyebrow, ears and mouth, while a constructor taking `Square` as argument drew the nose.

I started working with a structure of arrays, but soon switched to linked lists, as arrays require prior knowledge of size and I did not know how many segments would be needed to construct a typical face. The size of a segment had to vary, as well as the number of segments comprising a face.

In the first prototype, each facial feature was described by two `Segment`s: an actual `Segment` that changes according to the mouse action and an original `Segment` that is saved immediately after the face has been painted on the screen for the first time. The results of this scheme included undesirable (and unpredictable) image behavior in response to mouse movements. I realized that I needed to redefine the calculations in order to make mouse editing of each face part more predictable. To accomplish this, I had to add several kinds of data to the structures, including coordinates to identify a base line for each semicircle, which is used to avoid improper scale factors in stretching the semicircle.

The key to a better design was to improve how I handled each `mouseMotionListener` interface. The control of mouse pressed, released or dragged events is done at `ElasticFace` level. `ElasticFace` decides which `Segment` should be activated by the mouse; I used one large class for handling input interactions, instead of exploring its potential of delegating events to smaller objects (via data polymorphism).

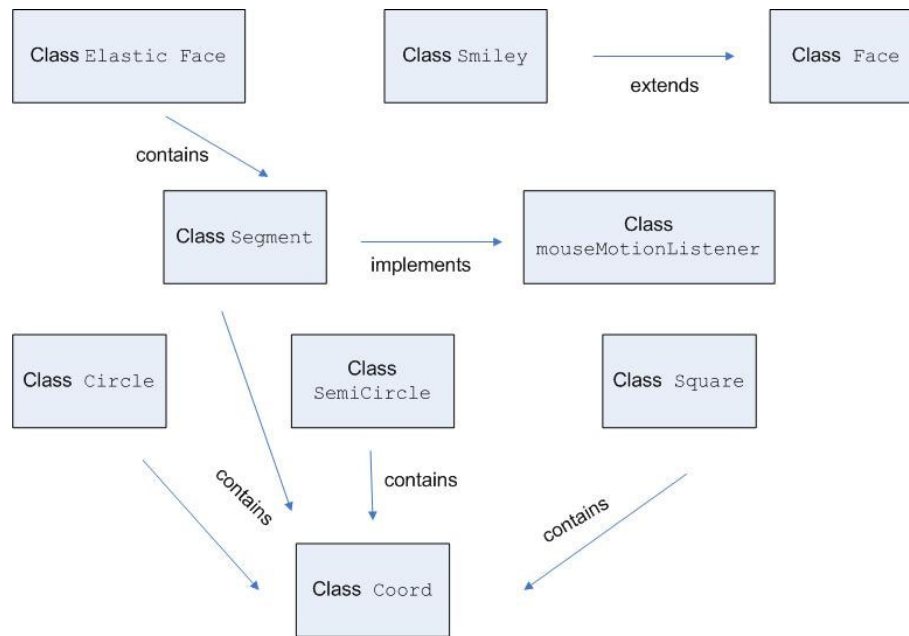


Figure 4.4: First class design architecture of *Dramatic Faces*

In my second architecture, I implemented one class for each part of the face (Contour-Eye-Nose-Mouth-Ear), and made `Segment` implement `mouseMotionListener`. Each face part class extends `Segment` and implements `mouseMotionListener`. Therefore `Eye`, `Eyebrow`, `Ear`, `Nose`, `Contour`, and `Mouth` are each subclasses of `Segment`. By having `Segment` direct the mouse movement, I simplified and delegated it one level down, and the control was not all at the `ElasticFace` level anymore. In this version, each `Segment` contained two linked lists: one contained the original coordinates of each face part, while the other contained the modified coordinates who were constantly changing. Linked lists provided easier access to the dynamic data. In this structure, event travel downward from `ElasticFace` to `Face`, `Segment` and then `Face's` parts (Contour-Eye-Nose-Mouth-Ear).

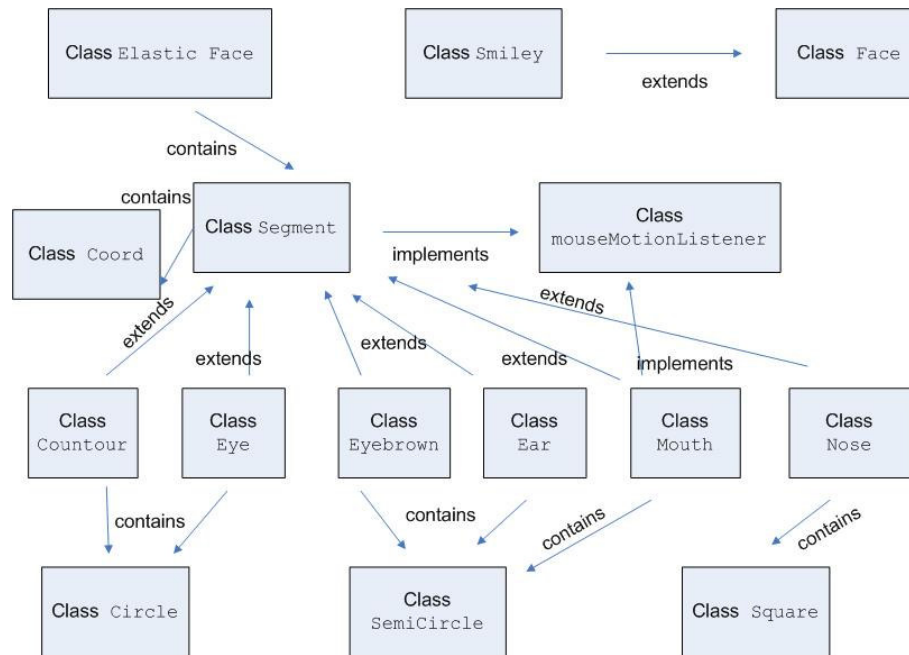


Figure 4.5: 2nd class architecture of DF

Testing indicated that this face model was not faithful to the behavior of realistic faces; in particular, lips could not be articulated separately. I wanted to implement mouth as a combination of lip superior and lip inferior, where each lip contains at least two segments that should have synchronized movements. I also wanted to make full use of inheritance and polymorphism to make implementation of complex faces easier and more understandable.

After several refinements, a face consisted of one linked list containing the three types of points: original, modified and baseline. This was accomplished by creating the `SegmentElement` class that defines an element of a `Segment` as having one set of coordinates for each of original, modified, and baseline points. I also made the object-oriented hierarchy closer to reality; a face contains the face's parts, and a face part is made up of segments.

This third design seems to work well. Any part of the face can be made of more than one `Segment` and it is intuitive to store endpoints for particular features unambiguously within the structures of facial elements. Mouse motions “bubble down” through the object hierarchy to act upon the leaves of the hierarchy. The mouse motion events are accepted by `ElasticFace` and relayed to the proper part of the face based on where the mouse is; from the face part class it is passed down to `Segment` class. In the new implementation, the `mouseMotionListener` identifies the part of the face nearest to the mouse and activates the listener for mouse motion from some facial component, this is the mouse motion handler of the nearest facial feature. The `Segment` class processes all the common methods to all the face’s parts. Any specific method is instantiated for a given face part: `Contour`, `Eye`, `EyeLid`, `Nose`, `LipSup`, `LipInf` and `Ear`- (see diagram below).

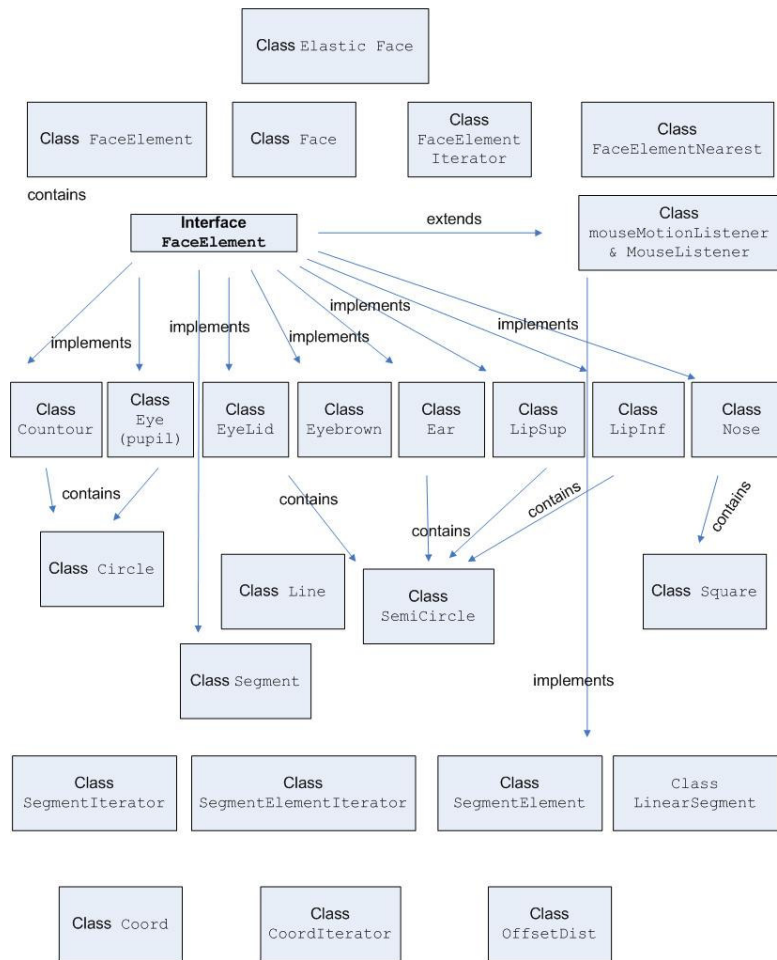


Figure 4.6: 3rd class architecture of DF

The key to how this all works is data polymorphism. In data polymorphism, one makes a list of items that are actually different in structure, but share a common interface with the outside world. A Face is a list of FaceElement. FaceElement is an interface that specifies all of the requirements for being a part of a face; each part should be able to tell when the mouse is near it, and should be able to react to mouse events appropriately. Thus FaceElement requires the presence of a mouse listener and motion listener. At the same time that our interface enforces some kind of structure or methods that should be present in the underlined classes, it also makes the model very flexible as the structure can be any. For example one might need some feature for the mouth and eye, but not for

the others face parts, even though the interface needs to enforce it for all, the feature can be empty in all others classes. The `FaceIterator`, `SegmentIterator`, `SegmentElementIterator` classes were defined to make the use of the linked list's iterators easier in the scope of this application.

The model could load any face that was created using this interface and would save any desired face in both text and SVG files. At this point only a face saved as text by this application could be loaded and be modified. The write method is based on iterating through each face part's linked list of features. It writes the name of the class (face part), the order in which the coordinates are outputted and the coordinates of each segment's linked list.

4.5.2 The Underlying Mathematics

The goal of the math behind the model is to implement an accurate motion of the face parts in order to portray muscle movements. The eye, mouth, eyebrow and ears have only a number of possible musculature variations. The nose is even more limited, but I would like to allow nose to be manipulated in the realm of the fantasy, so that children can portray some metaphors like Pinocchio. Choosing to give a long nose to a face might mean that the line delivered by that character at that moment is a lie. A potential advantage in online animated environments is the ability to explore creative meaning through exaggerated representations.

I used math functions to manipulate circles and semicircles. The code does control how far the mouse can pull or stretch a given face part. For example, an eyebrow and nose can be pulled far away from their original position, but not the mouth, or the eye.

When the software creates a semicircle, it computes its “base line”, which is the projection of any point of the semicircle in the X axis. I implemented a scale method that is responsible for stretching the semicircle or circle based on the mouse motion and position. I created methods that constrain the smile and frown, so the mouth does not go out of bounds and grow more than it should. I implemented the calculation of the nearest point of the mouse to a given face part in order to identify the part (class) that is being acted upon; and the calculation of the distance between two points; I used Lagrange interpolation, sine, cosine, and other functions.

I had thought about implementing motions of translation and rotation according to the mouse position on a given face part, I have not done this as yet. But I did implement specific scale movements depending on the part of the face. For example, ears and eyebrows have exactly the same kind of possible stretches. The mouth is made up of lip superior and inferior, and the set of methods implemented are different. The methods created for each part of the face mirror the kind of muscular movement that is possible in reality.

4.5.3 How to Add Face Elements

A face element is a part of the face (for example, hair). To add a specific hair style to a given face, one needs to create a class (such as `PunkHair`) and add the command below to the `ElasticFace` class:

```
elements.add(new PunkHair(new SemiCircle(new Coord(270.0,123.0),new Coord(285,138),30,10)));
```

This `PunkHair` class is made of a `SemiCircle`, but it could be made of a square, triangle or any other shape imagined. In this case the shape would have to be created as a class of its own before adding the command above. A face can have as many elements as wished by the designer in order to allow creativity in creating faces and diversity of faces.

4.5.4 Emotions and Dramatic Faces

Research shows that facial expressions and voices play an important role in portraying emotions. The bulk of research on emotions and facial expressions started with Darwin in 1872 and were continued by several psychologists and sociologists. Ekman (1999) has researched emotions for about 45 years and his is influenced by Darwin and Tomkins on his framework of basic emotions. Ekman (1997) concludes that emotional expressions are fundamental to the development and regulation of interpersonal relationships and that different aspects of expression are both universal and culture specific. Emotions can have a very fast onset, dimension of seconds, and the “... quick onset is central to the adaptive value of emotions, mobilizing us quickly to respond to important events” (Ekman, 1999).

According to Ekman (1993) there are five basic expressions: fear, anger, disgust, sadness, and enjoyment that are considered universal and biological as they might have evolved to deal with *fundamental life task*; several researchers have an explanation for those

fundamental life tasks, for some those tasks are related to species adaptation and evolution.

Ekman (1999) studies show that there are some basics facial musculatures that accompany these basic emotions and he isolated most of them. He also speculates that there are emotions that have distinctive vocal expressions but no facial expressions; and the voice, posture, or bodily action of some kind may be the only source of the emotion message. The voice gains attention from someone who is not visually attending to the communicator.

Ekman (1993) affirms that

“... It is the morphology, the momentary configuration produced by the contraction of a particular set of facial muscles that provides the information about whether it is anger, fear, disgust, sadness, surprise, or enjoyment. The dynamics of the movement also contains additional information about the strength of the emotion and whether it is genuine, although that information is also signaled morphologically...

...Theoretically, an extended expression could be composed of just momentary facial muscular actions, occurring in a rapid sequence, conveying an emotion message different from what is conveyed by each separate expression in the sequence. I will call the unhappiness emotions-disappointment, sadness over loss, remorse, shame, and guilt. I have preliminary evidence that these emotions share an expression in which the inner corners of the eyebrows are raised, the cheeks are slightly raised, and the lip corners are pulled downward.”

The way that I allow participants to express emotions is based upon the facial action coding system (FACS) suggested by Ekman & Rosenberg (1997). The rubber band is a computer method that gives the elastic capacity to a drawing line; I used it to emulate facial musculature. For example, by pulling the contour of the eye one can make the eye

wider to express surprise, or narrower to signalize anger and, combine tweaks of the eyebrow and mouth to portray the full facial musculature.

In theater, emotions are crucial to deliver the dramatic message of the play. In reality the whole body is used to communicate emotions (Planalp, 1999) and some believe that the body should intensify real emotions while in stage. Brecht (1964) explores the use of gestures to externalize emotions; the actor should make use of some action that gives away what is going inside of his character. Brecht believes that special elegance, power and grace of gesture should be used to portray emotions. In this context using dramatic faces and voices are a subset of *VFT* and just another option for the children to explore expression.

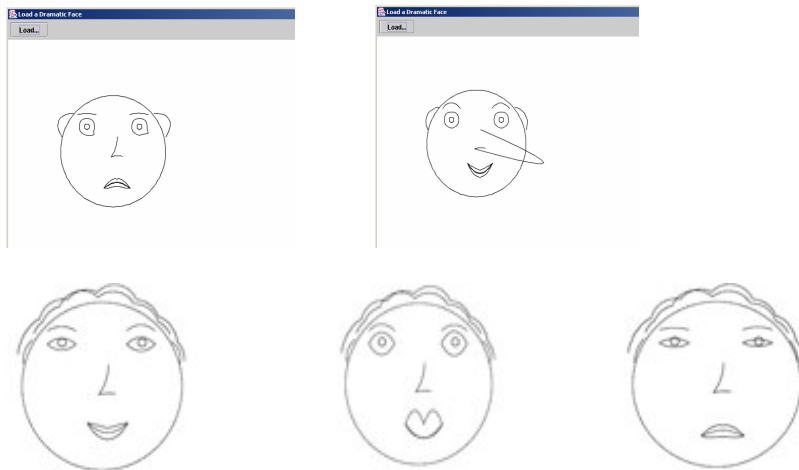


Figure 4.7: SVG Dramatic Faces

4.5.5 Evolution of Dramatic Faces

I had plans to improve the eyes movements and musculature. I wanted to allow the eyes to be closed, opened and be horizontally stretched to accurate portray an enjoyment or sadness on the face. I had to improve the musculature and movements of the mouth. I wanted to create a gallery of faces that the children can choose from in order to use as

characters and give emotions to it. This mean I had to draw some different faces by playing with the shapes and probably creating other kind of shapes as well.

Based on the first experiment of using Dramatic Faces (DF) with a group of six children age 10 to 12, I concluded that the faces need to provide skin and hair color. I realized that the line drawing did not provide enough texture when displayed as a small icon on the story board interface and it was not appealing to children. The children nowadays are bombarded with enough visual stimulus that a one-color line drawing is not enough to arouse their interest. For me it would be also easier to provide a greater range of combinations by manipulating skin and hair color in order to create more real life diversity of characters.

Rachael Vaskevich, Alva Couch's senior computer engineering student at Computer Science Department got my code of DF and transformed it to manipulate photo images (below); therefore the participants could take pictures of their faces, import them into the gallery of images, open it with DF and create the emotions the same way as if they were using cartoons. If they wished to use a cartoon face, DF would work the same way. After using DF in all five interventions, I realized that it needs more boundaries. The pre-teens and teens were not satisfied with the caricatures. They wanted to create faithful emotions, but that was not so easy to accomplish and they did not have the patience to accomplish it.

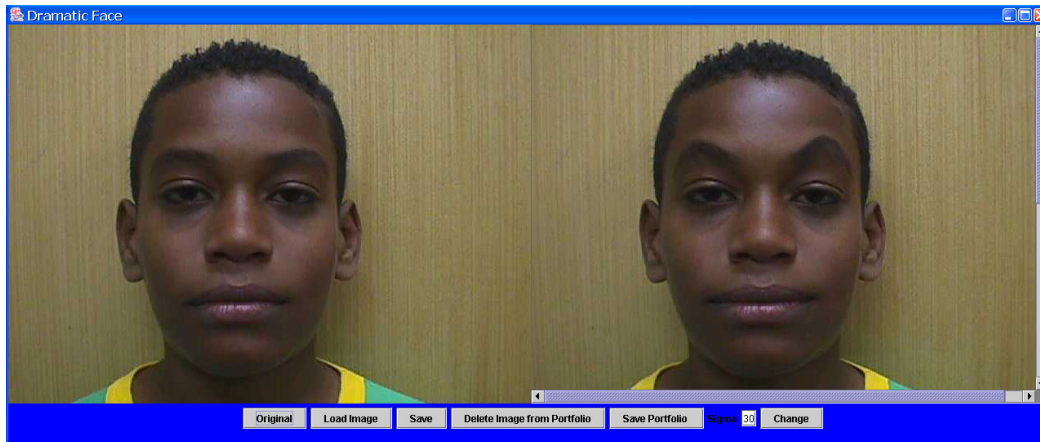


Figure 4.8: Final *DF* Interface

4.6 The GUI Storyboard

The first workable GUI storyboard was developed as a final master project of Ming Chow, Prof. Couch's advisee. We talked and I wrote a specification of what I needed. His first version was buggy and I did not catch some of the bugs before the first study, so it interfered with how the children reacted to it.

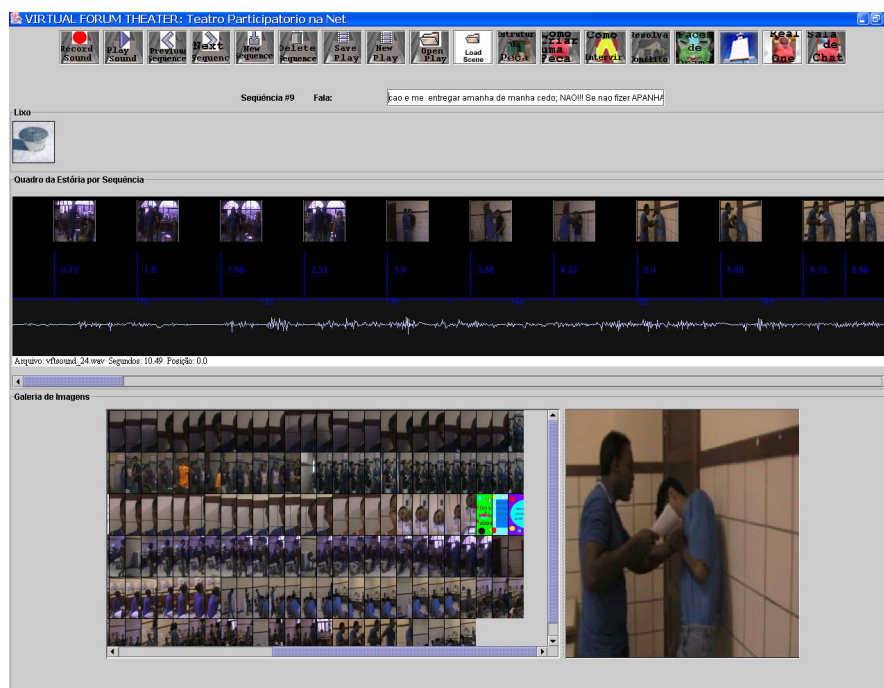


Figure 4.9: Final version of Graphical User Interface

I improved the first prototype (see Figure 6.3) by improving the GUI and changing interface for movement of the images to drag & drop. I added a wave graphic that indicates the amplitude of sound recording (figure 4.9), added a blue time bar to allow better synchronization of sound and image; introduced some buttons, such as connections to Real One (figure 4.10), Chat Room (figure 4.11), and a freeware drawing tool (figure 4.12); guidelines (figure 4.13), opening of a web-based virtual play (choosing from a list of server plays), and saving plays locally and on the server.

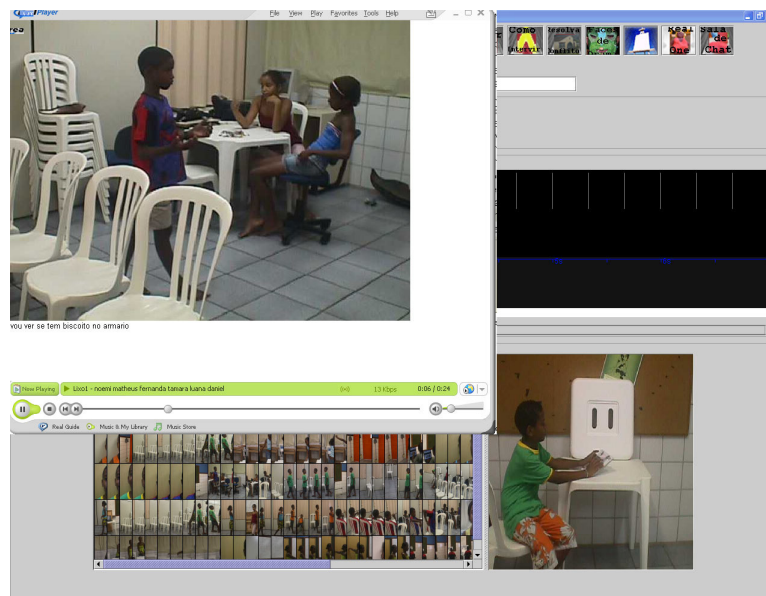


Figure 4.10: Real One called from VFT toolset

The feature to save the play in the local machine was implemented during the second study when we discovered we could not connect to the Tufts server because of site firewall restrictions. New messages were also created during the second study to accommodate the lack of Internet connection. Design-based Research was put in practice regards the evolving software development (adjustments to new learning environments).

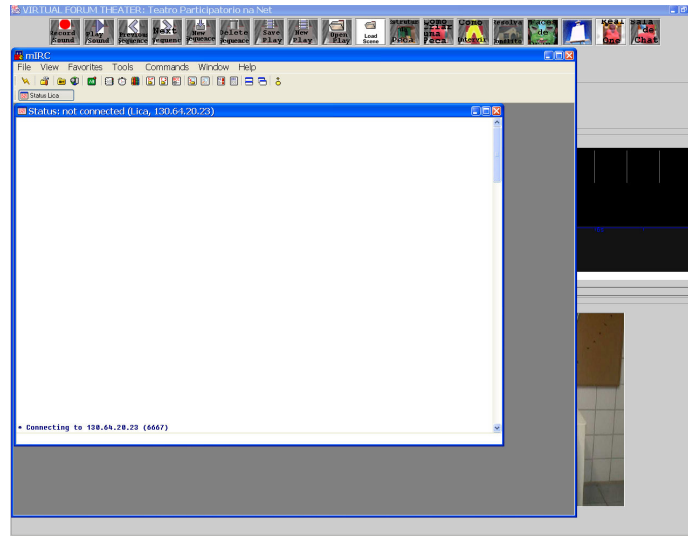


Figure 4.11: Chat Room called from *VFT toolset*

I made available two kinds of chat rooms; one was an IRC Relay (figure 4.11) and the other was a web-based one (see figure 8.13), which in fact was the favorite one for the children. The participants in the final study experimented with both.

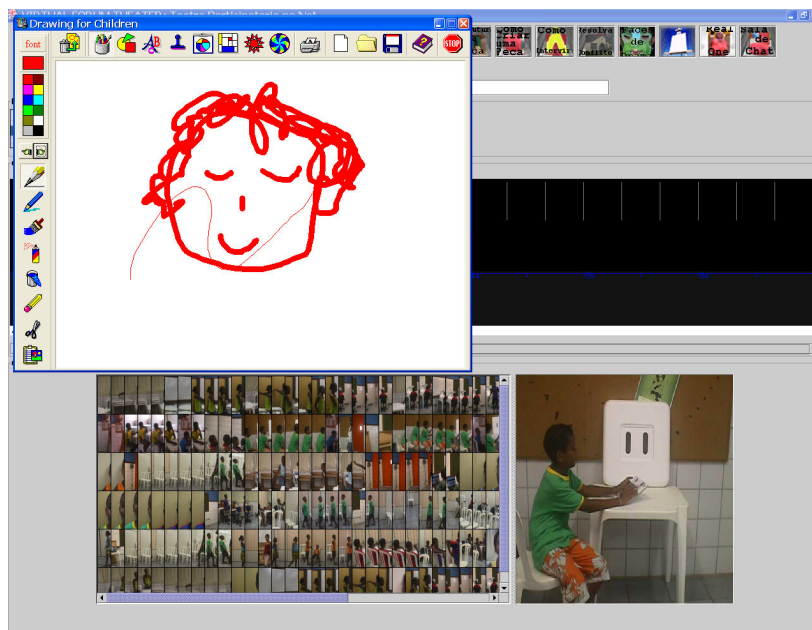


Figure 4.12: Drawing Tool opens when button is clicked

In this version, the freeware drawing tool resides in the client machine and any drawing made is saved in a group directory. When a learner logs into the *VFT* application, a pop-up window is displayed asking for the name of the person and the name of the group to whom the person belongs.

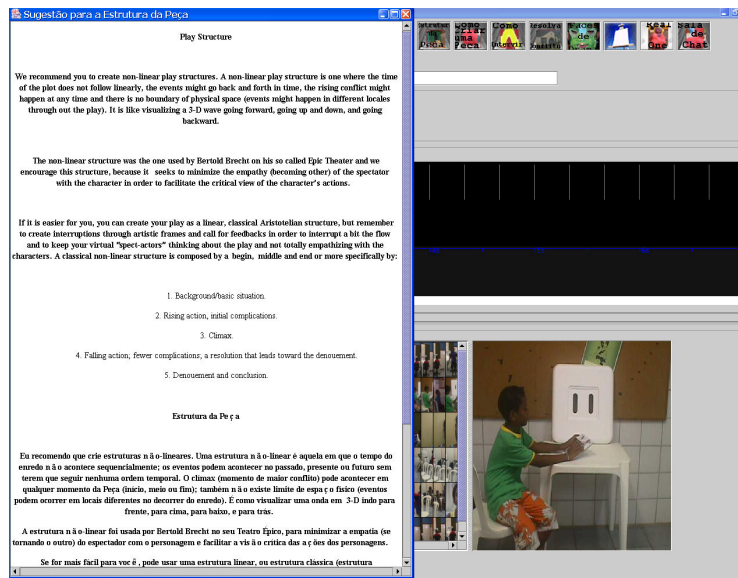


Figure 4.13: Guideline Button for Play Structure

The final version of Dramatic Face is showed in Figure 4.14. This opens when the learner clicks the green mask button. There are four buttons offering guidelines for play structure, how to create a play using *VFT toolset*, how to intervene, and how to solve conflicts. Figure 4.13 is an example of how the guidelines are depicted; one can change the size of the pop-up window or use the scroll bars. The guidelines are displayed as html files and are retrieved from the server.

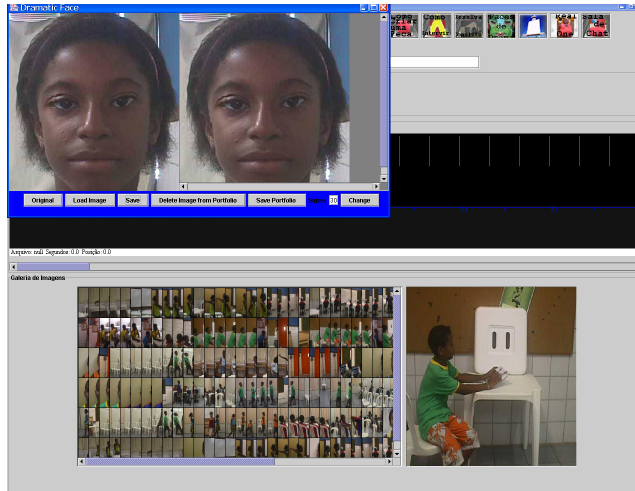


Figure 4.14: Dramatic Faces called from *VFT* toolset

I also developed a *VFT* server component to manage saving and opening the digital play. The *VFT* server runs on a remote host. The local application interacts with the server by creating a server thread that runs locally in the background when the open and save buttons are clicked. The server thread becomes a client of the remote *VFT* server, and is responsible for displaying a drop-down menu with the list of available digital plays, as well as tracking server status and confirming that server requests work properly.

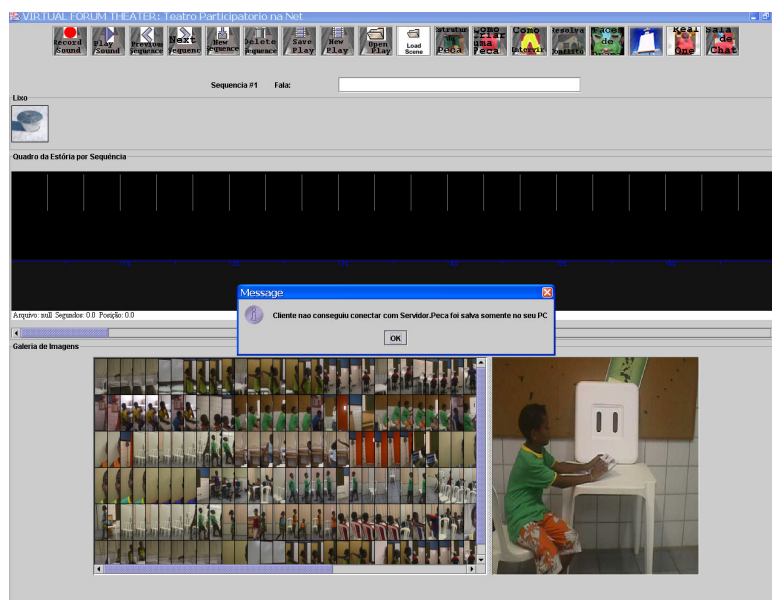


Figure 4.15: Pop-up window displaying server message

Every time the learner tries to open or save a play, the *VFT* server thread establishes a connection with the remote server to process the transaction; if the server is not available a pop-up message such as the one in figure 4.15 is displayed.

This research is a design-based one also with respect to the tool development, modification and adjustments. The design of the tool changed drastically between the first and second study. During the second study, I had the urge to implement a new feature to save the play (SMIL file) in the local directory instead of the server, because there were technical problems connecting to the server and the participants had to use the tool offline. The Internet connection in the school was too slow and it appeared to have some filters. I implemented the feature during the second study and improved it, adding some messages for the third study.

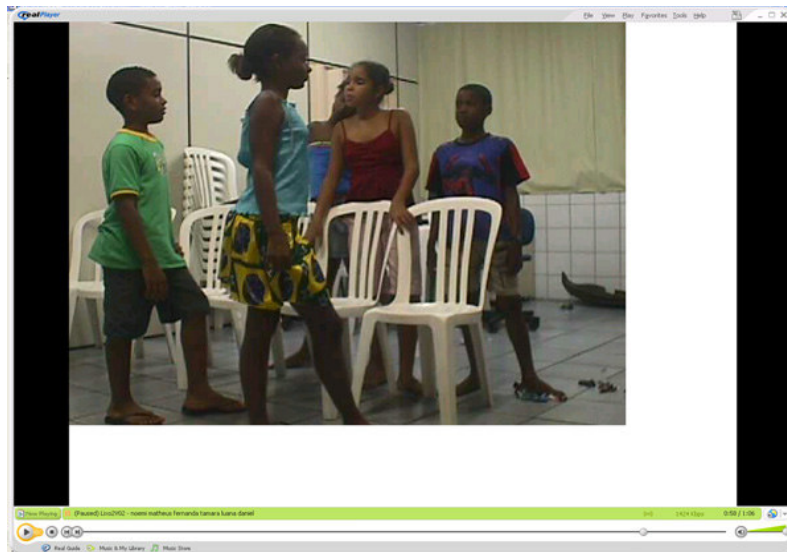


Figure 4.16: Real One playing SMIL file

4.6.1 Class Structure

The classes of the GUI interface (*VFT toolset*) do not inherit from each other, because each one takes care of a different set of functionality. The two classes are `SamplingGraph` and `ControlPanel`; `SamplingGraph` manages the display of the wave graph, recording and playback while `ControlPanel` takes care of all the software and modules that are opened by the image buttons. `Dramatic Faces` also appears as a class of the *VFT* application, but it was inserted in this project domain in order to make it easier and faster to be opened from this application, therefore there is no link with `SamplingGraph` or `ControlPanel`.



Figure 4.17: *VFT toolset* Class diagram

The *VFT* Server class structure shows the relationship between the classes when `vftmultiserver` class is instantiated by the *VFT toolset*. `Vftmultiserver` receives different messages from classes of the *VFT toolset* signaling different requests for actions; upon receiving these messages, `vftmultiserver` instantiates a specific class (see diagram below).

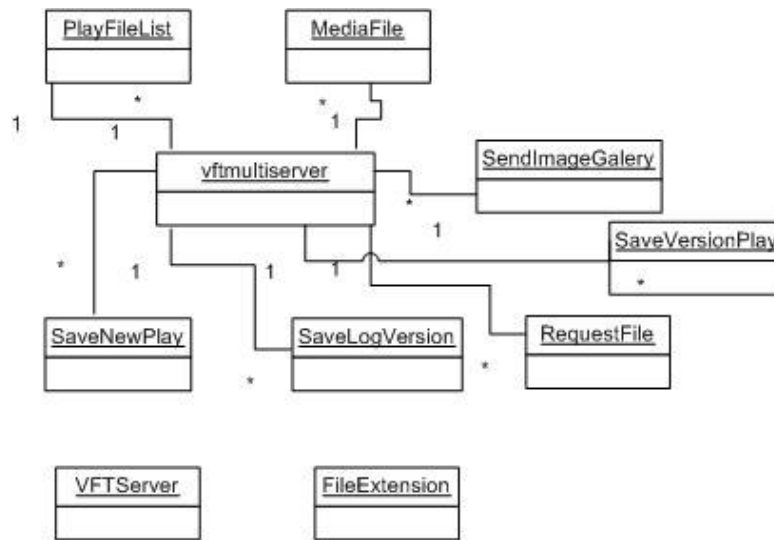


Figure 4.18: VFT Server UML diagram

4.7 Conclusion

The design and implementation of *VFT* in java was a major part of my PhD. Learning java and working with object-oriented programming was certainly a rich experience in my technological career that I hope to apply in my future endeavors while mentoring graduate and master students or developing educational software.



Figure 4.19: Final *VFT* toolset configuration

This research required constant adjustments to the learning environment and each group participating in the studies had a slight different demand, so the tool had to be flexible enough to accommodate quick changes. In this sense Object Oriented Design (OOD) facilitated the Design-Based Research (DBR) allowing implementation of new features or modification of existing ones without disturbing the studies.

Chapter 5 – Research Methods

5.1 Introduction

This study was planned as a design-based research (DBR) study with three iterations. DBR consists of a series of approaches used with the objective to create a specific learning environment and systematically study this environment in the naturalistic context that is implemented to support it. (diSessa et al, 2004). This chapter gives an overview on my research methods, including how DBR relates to *VFT*, and describes what I did in terms of sampling, data collection, and data analysis.

5.2 Background

The major categorization of research methods, according to Creswell's (2003) definition, divides research studies into qualitative, quantitative and mixed-methods designs. *Qualitative* studies concentrate on descriptive data observed by the researcher or informed by the participants through interviews or questionnaires. *Quantitative* studies utilize surveys and other numerical measures of data. *Mixed-method* studies combine observation (a qualitative practice) with surveys and other quantitative measures.

A research study (whether qualitative, quantitative, or mixed) is usually framed via adoption of some philosophical assumption, such as Postpositivism (Phillips & Burbules, 2000), Constructivism (Lincoln & Guba, 2000), Advocacy/participatory (Kemmis & Wilkinson, 1998) and Pragmatism (Rorty, 1990). Postpositivism echoes a deterministic

philosophy in which causes might determine effects or outcomes (“scientific method,” doing “science”). Constructivism states that people want to understand their world and can construct their own complex meaning. An advocacy/participatory position extends the constructivist approach by campaigning for an action agenda to assist marginalized populations. Pragmatism is concerned with applications and solutions to problems (“what works”); the problem (not the method) is most important and researchers use any approach to understand the problem. Usually, pure quantitative research design fits into the postpositivism paradigm, qualitative research design might match with the philosophy of constructivism and/or advocacy/participatory, and mixed methods are typical of pragmatics researchers. In the context of these philosophical frameworks, this framework of this research study is constructivist and (nearer the end of the studies) advocacy/participatory; thus I adopt a qualitative methodology throughout much of the study.

Creswell (2003) identifies several methodologies of inquiry (strategies) used for each research approach. Methodologies appropriate to the constructivist framework include case studies (which involves a smaller number of participants and analyzes through comparison of the observed data by case), phenomenological research (that concentrates in depth on a phenomenon described by the participants), and narrative research (that describes the life stories of the participants) with qualitative design.

Another methodology suitable for study of constructivist learning environment is design-based research (Brown, 1992). According to Collins and others (2004), design-based research (DBR) is a strategy mainly classified under the umbrella of mixed methods,

even though DBR can utilize plain qualitative methods as well. DBR is a strategy with a transformative agenda; it has the goal of designing, implementing and assessing learning environments (with or without technology) and might, at the same time, allow development of theories of learning or cognition. One of the purposes of DBR is to impact learning and teaching in naturalistic settings. Ideally, DBR consists of a series of design iterations, observing and adjusting what goes wrong in the study to come.

In designing my experiments, I was inspired by recent work in design-based research that seems to suggest it as the appropriate method for evaluating educational software that supports a participatory and collaborative approach with the participants. In two special issues of *The Journal of the Learning Sciences* (JLS) during 2002 and 2004, several scholars wrote theoretical papers on the subject (Barab, 2004; Collins & Joseph, 2004; DiSessa & Cobb, 2004; Soloway et al, 2004).

Design-based research introduces a myriad of techniques by combining old and new ones, and it seems to accomplish well the goal of fostering a more humane and progressive kind of education for our children (Barab, 2004). DBR might be the most appropriate methodology of inquiry to be used by researchers who are designing learning software. By showing successful learning results, design-based research continues trying to dismantle the traditional classroom environment of passive students.

I situate my study by adopting the Constructivist philosophical assumption, even though it could also fit under Advocacy/participatory, but I did not set an action agenda at the

outset and chose to collect some quantitative data to reinforce the qualitative data analysis. I used Design-based research (DBR) methodology using mainly qualitative methods of inquiry.

I follow the methodology suggested by DBR, including “engineering” the technological drama learning environment and studying it through a series of three iterations. Each iteration had the overall objective to observe the children as they were using the tool, in order to verify if the tool allowed the participants to work on desired learning goals, and to determine what else might be needed to improve the learning process. Each iteration also gave feedback for the design of the next experiment (educational intervention) and of the *VFT toolset* itself.

All the three experiments consisted of a before or after-school activity on drama and technology, where the researcher facilitated *Drama-in-Education* (DIE) and *Forum Theater* techniques, and supported participants who extensively worked with *VFT*. The session’s activities included dramatic warm-ups, improvisation techniques, a break for a snack, working on personal computers with *VFT*, and group discussions. These activities changed slightly between iterations and between groups, because each group had a slightly different set of interests and pace.

5.3 DBR and the *VFT*’s Dramatic Techniques

The *Drama-in-Education* and *FT* techniques of improvisation have practical similarities with DBR. They all have a transformative agenda: educational, social, or political. The

goal is to improvise a given idea in order to create a short play, and continue in a circular process until the group is happy with a version of it, and has exhausted issues to discuss about the situation portrayed. In *VFT*, youth think of a theme, discuss it, improvise it, and – when satisfied – implement it in digital form. This process corresponds to the designing and implementing steps of the DBR methodology. Once the digital play is on-line and the virtual collaboration starts, the process of changing the play and adjusting the solutions to the issues presented by the *VFT* play also begins, which could be compared to observing and adjusting what goes wrong in the next study.

DBR works as an educational intervention since one of its goals is to influence learning and teaching in naturalistic settings; therefore each iteration of the experiment in the learning environment attempts to promote a change in the participants' cognitive abilities. Brecht's intervention attempts to promote a change in the way the spectators watch the Epic play and reflect upon it. Boal extends Brecht's intervention by encouraging the spectators to promote the changes themselves in the stage. *VFT*'s intervention consists of digital frames asking the virtual "spect-actors" for feedback, and encourages new rehearsal of the conflict in order to find alternative solutions; therefore *VFT*'s intervention also tries to promote change in the ability to argue points of view and expressive fluency through virtual enactments.

5.4 Experiments

The first experiment occurred in Somerville-Ma-USA, over a period of three weeks, in the format of an after-school activity. I was required to provide a snack for the children before we started the activities.

The last two experiments happened in public schools in Salvador-Bahia-Brazil and shared similar populations of participants and activities, but differed in the amount of time spent with the participants. The second study lasted two weeks of two hour daily sessions. The third study involved three groups. Each group of the third experiment attended between seventeen and twenty sessions. The study started in September 2007 and finished towards the end of December, one week before Christmas. I had two sessions of two hours per week with each group, and followed the public school holidays and special school closures (presidential elections in October and November).

Experiment	Number of participants	Schedule	Ages
1 st : SYCC	8	3 weeks – 12 hours	10-12
2 nd : Landulfo Alves	6	2 weeks – 25 hours	14-18
3 rd : Rotary Public School	7	11 weeks – 35-40 hrs	15-18
3 rd : Kabum	6	12 weeks – 40-48 hrs	11
3 rd : Aplicação Pub School	8	9 weeks – 25 – 30 hrs	14-18

Table 5.1: Study Demographics

The way of working with each group was very much the same throughout, with a few adjustments depending on the pace and expertise of each group. I started each session with two or three warm-ups (dramatic exercises) to promote group bonding and/or

creativity in order to create stories and dramatize them. These warm-ups were a mixture of *Drama-in-Education* (Heathcote, 1984) or *Theater of the Oppressed* (Boal, 1992) games (see section 5.9 for details on warm-ups). The first two or three sessions were focused on brainstorming and creating the play. After that, each session was divided into warm-ups, rehearsals and working with *VFT* to create the digital play. The time for each activity varied from group to group. Some groups enjoyed and engaged better in the warm-ups than others, some groups spent more time discussing the plot than actually rehearsing it or the other way around, but all the groups took pictures and manipulated the *VFT toolset* (amount of time spent on *VFT toolset* varied by group). I give details for each group in their respective chapters.

Based on my experience with the first study and knowing how important the relationships with the participants and all possible informants are, I tried my best to develop a close relationship with everyone. I kept the teachers and vice-principals informed of the activities and student progress. I attempted to develop a peer relationship with the students. I also provided a good-bye meeting at my house for all of them. Outside the circle of participants, I also had to relate to and obtain information from teachers, principals and vice-principals.

5.4.1 Sampling, Settings, and Time

All participants of the first, second, and third studies were selected by the respective school teachers or vice principal, except for one group of children who were selected by a staff of the community center where the study took place. I contacted the vice-principals

by e-mail and phone and described the population of students for which I was looking. All the students were selected because of their interest in participating in a workshop on theater and technology.

The girls who participated at the first study came walking from their public school that was situated almost around the corner from the community center. I found this center a few years ago (when I finished my master at Harvard Ed. School) through the Alliance of Portuguese Speakers, when I was offering my time to work with Brazilian immigrants children.

The second study took place in the low city of Salvador, Bahia, Brazil, at a public school named Landulfo Alves. I arranged this site by e-mail before traveling to Brazil, through a few contacts in my home town.

Given the time spent driving to reach the second research site, for the third study, I decided to look for public schools closer to my house that had computer laboratories with internet connection and a similar population (to that of Landulfo Alves) of low-income students. Through friends, I found two high-schools nearby that were considered to be good schools with good computer laboratories.

The third study involved three groups. One of these groups had the experiment conducted at a Technology Community Center that was located near to a poor and dangerous area with a history of gangs and high criminal activity (see chapter 8). Two groups worked

with me in the afternoon and one in the morning. They all would come to the school (or center) twice during the two days we worked together; some would walk to the school while others had to take a bus. All the eleven-year-olds walked from their houses to the Technology Center.

This Technology Community Center assigned me a group of 11-year-olds. Initially I was not interested in working with a young group of students, but after the Center had recruited the children for the workshop, they informed me about their age and I did not want to disappoint the children

5.4.2 Data Collection

Qualitative research observes behaviors, learning and relationships between participants in natural settings, collects words and actions as data, and tries to explain the effect of several variables on the experiment (Wiersma, 1980, Strauss, 1998, Spradley, 1980, Miles & Huberman, 1994).

During the first study I collected qualitative data through pre- and post-activity surveys, field notes, video tape, and exchanging observations with Michael Horn, a computer science master's student from Tufts at the time.

During the second study I collected qualitative and quantitative data through pre- and post-activity surveys (an improved version of the survey developed for the first study) and field notes. I had a problem with the video camera battery and could only videotape

one session. The participants filled out surveys before and after the study, when I was not present.

For the third study, I collected qualitative and quantitative data through a similar pre- and post-activity survey applied for the second study (one or two extra questions), teacher pre- and post-activity surveys, participant interviews, field notes, videotape of most of the sessions, and the *Myself and Technology* (Bers, 2006) survey both pre-activity and post-activity. I applied the *Myself and Technology* survey to triangulate the data that corresponded to VFT learning goals.

I wrote a very detailed memo after each session. I tried to capture the participants' reactions to all the activities and to the tool itself, behaviors and attitudes towards each other and me. These field notes were used to triangulate the participant's self-assessments and complement the video tapes.

Another instrument essential to triangulate the participants' responses was the survey I developed for teachers. Interviews also helped to get information from the participants, especially because they wrote very little in their surveys.

The play created by each group worked as an artifact that I was able to collect and analyze. It certainly gave a good insight of where the participants were in terms of social awareness and level of cognitive development.

5.4.3 Data Analysis and Coding Strategies

For all the studies, I used the techniques that best fitted with my design and research questions. I applied the coding approaches suggested by Miles and Huberman (1994) reaching a set of patterns codes and creating an interrelation of pattern codes. I tried to understand the culture of each group in order to better grasp the learning that was going on by applying descriptive matrix and getting closer to a domain analysis (Spradley, 1980). In the case of my research the domain analysis also apply to the features of the *VFT toolset* in relation to the learning supported by each feature. Tables illustrating data analysis are presented in the next chapter.

5.4.4 Validity and Reliability

The validity of the data was accomplished by methodological and theoretical triangulation. Several instruments for data collection were used in order to provide cross-over references. Surveys, field notes, video tape, participants, teacher's interviews and the play created by the participants (artifact). The data was analyzed according to the main theories that influenced the research. Known threats were also examined. Chapter 8 describes details of the approaches used to obtain credibility and trustworthiness of data.

5.4.5 Dramatic Exercises

I used several dramatic games with the participants based on games proposed by Spolin (1983), Heathcote (1984) and Boal (1992). These games are usually explored by courses on drama, theater, and acting, as well as Theater of the Oppressed workshops and

communities work led by Boal or TO practitioners. Most of them are well known by the theater and drama communities all around the world.

Some of the games foster group bonding, which is very important when the group needs to work collaboratively; therefore the first five sessions were spent in these kinds of warm-up (two out of three per session). The only group with which I did not emphasize group bonding games was Aplicação, because the students have been working together for over one year and were very well connected to each other. The games 1, 7, 8, 9, 10, 12, 16, 19 and 24 in Table 1 were used as “group integration” activities.

The need to be creative when working with drama is basic, as well as dramatic expression portrayed through body and face. I applied a few games to loosen up the body, but facial emotions were worked out through picture taking and Dramatic Faces. The major focus was on creativity and improvisation techniques that are directly related to expressive abilities. The games 2, 3, 4, 5, 6, 11, 13, 14, 20, 21, 22 and 23 in Table 1 work on creativity and improvisation.

1. *Circle games:*
 - a. Each person says his/her name followed by an adjective that best describes himself/herself.
 - b. As a second round, the group repeats together with the person the name and adjective.
 - c. Each person says own name followed by a gesture and sound.
 - d. As a second round, the group repeats together with the person the movement and sound.
2. Ask them to get into groups of four/five and create an image of a moment of oppression, unfairness, or some conflict/problem that they don't know how to solve. Each member of the group should create an image.
3. After each still image is presented than the student should tell the story of it.
4. After activities 2 and 3 are finished, the group should choose one story to improvise dramatically.
5. *Story Improvisations:* Each person says one word for a story created on the spot
6. *Collaborative storytelling:* Each person says a sentence for a story being created by the whole group.
7. *The bear of Poitiers:* one person (the bear) turns her back on the others, who are the woodcutters. The woodcutters are busy at their work. A bear roars very loudly and then all the woodcutters fall to the ground and must stay there without making any movement (motionless). The bear goes up to each one of them, roars whenever she likes, touches them, tickles them, prods them, tries every trick to make them laugh or move in any slight way proving they are alive. If the bears succeeds, the woodcutter becomes a second bear and the two of them continue to try the others move until there are no woodcutter any more.
8. *Grandmother's footsteps:* one person faces the wall while the others start moving from a distance towards the person facing the wall who counts one, two three before she turns back and face the ones walking; whoever she catches in movement when she turns back needs to start it over and this goes on until someone manages to touch the person facing the wall.
9. *Sticky paper:* one person in the center; the others might be touching her or one another, but with a sheet of paper between the touching parts of the bodies. The person in the center must move and all the others move with her. The papers should not drop. Any part of the body can be in between the paper.
10. *Balloons:* Bring one balloon for each student. Each student should throw the balloon up not letting it fall on the floor without using his or her hands. When the balloon falls, the student will help another and the leader will take the balloon that falls.
11. *Walking on varied surfaces* (ocean, hot sand, sticky mud, stones, etc): the participants are asked to walk around the room in a kind of surface chosen by the leader who shouts it every few minutes.
12. *Good morning:* walking in the room a person should salute the other saying (morning, afternoon or night) and shaking hands; one can only look for another

person to salute after she shakes two people (one in each hand).

- 13.**Character building: *The child's dream: what I wanted to be when I grew up* – half of the group write their names in a piece of paper with the hero or kind of person they wanted to be when they were children. Then they walk in the room portraying that characters by gestures (mimics) while the other half watch; then they look for pairs and engage in dialogue while in character without giving away their character. They should switch pairs twice and after that, the leader (joker) reads their names aloud one by one and for each one the others should describe the characteristics they saw in that character until someone guess the role of that person.
- 14.***Complete the image*: two people shake hands. The others look and decide what could that be: business meeting, lovers, drug deal? Then in pairs, participants should be shaking hands and freezing the position, so that one person gets out while the other is frozen, the person who comes out should look at the image and quickly try to transform it with another position for the hand shake; the first person then leaves while the second is frozen and does the same. The joker should that goes on for a while and might ask the participants to change pairs, or put a chair or any prop between each pair and observe if and how the dynamics change.
- 15.***One person we fear, one person is our protector*: participants walk in the room and decide who the person they fear is and without letting that person knows, she/he will continue walking, but trying to maintain a distance or avoid the one she/he fears. After a while, the facilitator says “stop” and the participant chooses a person to be her/his protector. After that she/he should try to keep the protector in between her/him and the person she/he fears.
- 16.***The driver is crazy*: Split the group in two, making two lines. The first one in the line is the driver. As the leader gives the sign the driver has to drive in a crazy way while all the others on the line behind him need to hold tight so not to get loose (they should hold on the waist level). Change the motorist until each one has a turn.
- 17.***A round of rhythm and movement*: One person in the center of a circle makes a movement or gesture accompanied by a sound, and everybody in the circle has to imitate this gesture and sound as much as possible; then another person comes to the center to make the gesture/sound, and so on until everyone gets a turn.
- 18.***Lines of five*: the first person in line makes a gesture and sound in rhythm and all the other four in line must repeat; the first person in line goes to the back of the line and the second person should add another gesture and sound and so on until the fifth person in line gives it contribution and the line repeats all the five gestures and sounds in order.
- 19.***Vanity*: Groups of two. One person holds a pretend mirror and the other should follow the mirror wherever it goes.
- 20.***The sculpture*: In pairs, each participant should take turns sculpting the body of the other without saying any words.
- 21.***The Chief*: The students should be in circle. One person volunteers to go out. When he comes back everybody is doing the same movement/sound. There is

one chief who changes the movements and everybody else follows. This person should change often and the volunteer should find out who is the chief.

22. *The empty space:* Without leaving empty a single space in the room, move around the room very quickly filling all the spaces, and when the facilitator say “Stop” everybody freezes; one should not see any empty space in the room.

23. *Murder & detective:* One person should decide what the profession of the murderer is, where the scene of the crime is, and what the weapon is. Then this person mimics to another person, the second mimics to the third, and so on until the last person sees the last version of the dramatization. This last person is the detective who should guess the profession, location of the crime, and weapon used by the murder.

24. *The machine of rhythms:* one person starts a rhythmical gesture and sound; one by one should add to this gesture/sound trying to create an unified machine; the participants should try to be close to each other in order to better portray the machine; once everybody has her own gesture/sound, the joker asks them to do it faster, louder, slower, softer in any variation she/he desires.

25. *Character building:* While walking in the room, participants should act out a type of person (character) given by the mentor. For example: an old person, a child, a clown, a homeless asking for money, a singer, a priest, etc.

Table 5.2 – List of warm-up used in the experiments

I had planned to use all the games listed above with all the groups, but, in fact none of the groups played all of these twenty-five games. There were a few games that the children liked better than others, they did not always do well in the more open-ended games (the ones that required more imagination); therefore I decided not to use them as much and, instead, I repeated a couple of warm-ups for Kabum’s children in the third study.

The Rotary group did not engage well in the dramatic games, they would not focus well and acted embarrassed to show their imagination, so I also used less games with them, more like one per session after six or seven sessions. Aplicação loved all the games, but because we only had about one hour together I had to skip the warm-ups and do only one per session and (towards the end) no warm-up at all.

In general the warm-ups helped the participants let their creativity flow in order to improvise easily. Both Kabum and Rotary engaged well with pretend play warm-ups, the games where they had to tell stories to each other and then act them out to the whole group.

5.5 Conclusion

Since I chose to use design-based research as a methodology of inquiry and there is no set of fixed strategies and approaches related to DBR, I was free to choose the best strategies that fit best with my research questions and the kind of data I collected. The next three chapters present details on the methods used for each experiment followed by the data collected, and results.

Chapter 6 – Pilot Study at Somerville Youth Community Center

6.1 Introduction

This is the first of three iterations of Design-based Research. I analyze a few case studies of participants via a narrative approach. The case studies I chose encapsulate the learning going on during the workshops, but also how it failed to happen to some participants. In this chapter I present the methods, data and results of the first iteration (Spring of 2004 in Massachusetts).

6.2 The Experiment

The first experiment was done early in the process of design (at the time that the first prototype was ready). My goal was to validate the design of the tool and find out if the children would engage with the concept of *VFT*. At this stage, the study was purely qualitative and I used the “soft-nosed positivistic” (Miles & Huberman, 1994) method: collecting data through observations, field notes and video tape. This method uses a variety of strategies for collecting, coding and analyzing data; therefore the researcher needs to be flexible on deciding which ones to apply. I used memos and field notes and applied the coding strategies suggested by Miles & Huberman (1994) such as descriptive, interpretative and pattern codes, because they were most relevant to address the questions I was exploring. I used mixed methodologies for data analysis, using techniques from

grounded theory (Strauss, 1998) and ethnographies (Spradley, 1980) which are explored in the respective following sections.

The workshop entitled "Virtual Forum Theater" ran for three weeks, meeting twice a week for two hours each session. The research questions below guided this experiment:

1. How engaging are the prototypes to the children?
2. How do the children make sense of the tools?
3. What do children learn by creating a digital play?
4. How much of a collaborative learning environment is afforded by Dramatic Faces and the GUI storyboard?
5. What should be the next steps in the design of *VFT*?

6.2.1 Participants, Settings, and Time

This experiment was conducted at Somerville Youth Community Center (SYCC) in Massachusetts, an endeavor that provides youth programs, social activities, after school learning programs for local middle and high school students and hosts a gaming room for neighborhood youth more than eleven years old.

SYCC has a connection with East Somerville School, its neighboring public school, and they were responsible for recruiting participants in partnership with the school. The social worker of the school looked for children ages eleven through twelve who wanted to participate in an After-school Theater and Technology activity at SYCC. She used a flyer created by myself and a staff of SYCC to advertise the activity through the school. The

only condition to participate in the study was the own interest of the child. I followed the IRB protocol listed in Appendix 1 and each parent or guardian completed and signed a consent form.

This sample consisted of eight school-age girls from the East Somerville School in Somerville, Massachusetts. The children had to walk about seven minutes from their East Somerville School at the end of the school day at 2:30 pm. Of ten students who were initially recruited, eight participated in the study. Four spoke Spanish as their first language, and two were native Portuguese speakers from Brazil. One was of Asian background and one from Scotland (her father from Scotland was a visiting scholar at MIT for one year). One girl was ten (underage according to Center rules), four were eleven, and three were twelve years old. I had to ask for special permission from the Center to allow the 10-year-old to participate. They were all fluent in English. They knew each other from school and there were at least two pairs of very good friends in the group.



Figure 6.1: Creating Dramatic Faces

6.2.2 Relationship Established with Participants

My rapport with the participants of this first group of children in Somerville was slightly formal. The participants at SYCC were immigrants' children born locally or from another country. Since they all had distinct ways to behave and to respond to outside stimuli, I was more or less neutral as a mentor and developed a "teacher-like" rapport. I felt myself playing the role of a relatively demanding teacher with some of the children. As a researcher I tried to be neutral on my observations of their behaviors, relationship to each other, to the research assistant and to the tool.

The relationship between the participants and the researcher is important in qualitative studies, because the researcher is one instrument of the research and the research relationships are the way by which the research is done (Maxwell, 2005). In this pilot, I thought that being neutral was the best rapport I could develop, but quickly I found that was not necessarily true.

6.2.3 Expectations

At that time, my purpose was to assess if the children would engage with the prototype and the idea of creating virtual plays. I wanted to test the interface and determine next steps for development. I planned dramatic activities both with and without the computer in order to get the students accustomed to artistic practice and to generate thoughtful plays, in accordance with Ward's idea that the techniques of drama improvisation (also called *creative dramatics* (Ward, 1981)) improves children's abilities to express themselves and create dramatic plots or scripts (Ward, 1981; Brestoff, 1995; McCaslin, 1996; Jorgensen, 2000). I wanted to provide a fun learning activity while gathering participants' opinions, and reactions to the tool.

I used the desktop computers of the center, even though they had low memory and Windows 95 installed on them. While I knew this would adversely affect tool performance, and thus also impact students' perceptions in using the tool, I used these computers because it was important to have at the most two children per computer; the study would not give adequate results if eight children had to share my laptop.

6.2.4 Data Collection

At SYCC, I facilitated the sessions and was assisted by Michael Horn, a Computer Science graduate student. I created pre- and post-workshop surveys (Appendix 3) for the children. I took descriptive notes of the children interactions among themselves and with the facilitators, as well as children's reactions to the tool. I videotaped all sessions using two stationary digital video cameras, recording their interactions with the tool and among themselves as a way to document participant observation, their immediate reactions to problems raised by computer interactions, and their engagement with the tool and the situation.

Even though all the sessions were videotaped and their reactions were captured, the precise content of some dialogs between participants were lost, because there was no external microphone attached to the video cameras. There were very few audible transcripts from when they were creating faces, animating and recording lines; this is the kind of activity where they would speak on low voices, and since the camera was stationary, I lost some (perhaps precious) data.

6.2.5 Data Analysis and Coding Strategies

The analysis plan for the first intervention at SYCC was to generate notes from videotapes, compile the data from surveys and from our field-notes, then code and analyze the data. The goals were to answer the research questions and evaluate the impact of the Dramatic Faces (DF)'s and GUI storyboard's prototypes. I accomplished these goals by looking at children's attitudes, actions, and reactions to the proposed activities, what they say about the activities and tools, how engaged they appeared during the creative process and during semi-structured work on the computer (based upon ethnographic coding).

A crucial part of this study was to determine in what ways the tool engages or does not engage the participants in creating interactive drama. Based on my coding system, participants are "engaged" when they demonstrate a passionate feeling while performing an activity or task. For example, when a child shows signs of engagement, she might talk louder, use her entire body to gesture, look directly at the person or thing she's working with, and be harder to interrupt. On the other hand, when a child is not "engaged", she may show signs of distraction or boredom, and her attention may wander easily. She may start doodling or get up and walk around the room.

I applied coding techniques from ethnographic research, starting with participant observation, making ethnographic records, making descriptive observations, and performing domain analysis (Spradley, 1980). I read the field notes that I typed a few times and underlined key words; the words that I thought were directly connected with

my questions. I used the schema of space, actor, activity, object, act, event, time, goal, and feeling suggested by Spradley (1980) when coding the notes.

I transcribed as much of the conversation from the video tapes as I could. I coded the video data using a coding based on Spradley (1980) and on the “soft-nosed” positivistic approach from Miles & Huberman (1994).

I perused the data looking for semantic relationships, in order to perform a domain analysis (Spradley, 1980), as a way to capture the cultural scene of our participant group. This helped to isolate some aspects of the children’s culture – including relationships between themselves and with the facilitators – that might influence how they made sense and engaged with the tools. The kind of attitudes the girls have is fundamental to how they will tackle the problems presented by the activities and tools, for example the attitude of “I am bored or annoyed” was common of the 10-year-old girl, demonstrating that she was not engaged with the tool and was not having fun with the activity.

Isolated semantic relationships (such as kind of attitude, kind of relationship, and kind of questions participants asked) illustrate the existing culture. A few examples of kind of attitude the children exhibited are collaborative, excited, proud, engaged, argumentative, curious and disruptive. Close friends, becoming friends, and superficially involved are the kind of relationships observed among the children. Other important relationships observed during the study are the kind of questions they asked such as “Can I draw the characters of my play on paper?”, “Can I use the video camera?”, “Can I take pictures?”,

“Can I substitute the sister in their play?”, “What is Virtual Stage?”, “What is an antagonist?”, “Can we synchronize the voices with the character’s lip?”, “How can I make this mouth move slower?”, “How can I make this mouth smaller than this?”, “How many pictures should we take for a movement?”, “Is four scenes enough for a play?”, “Does the script sound like real life?”, “Does the script sound like real life?”; or the way to have fun such as being silly, laughing at each other’s, telling jokes and exaggerating in their enactments.

At this point, Spradley’s methodology was not relevant to my data and goals because I was not really looking into studying a culture, but rather looking into the learning afforded by a computer tool and how this tool is used by the participants. In sum the coding done so far gave a good background into the culture where the research takes place. I needed to further look for patterns in the activities and meanings in regard to what the participants said in relation to their learning, to the division of task inside their groups, and to the level of difficulty of the activities. These goals are better addressed by the schema suggested by Lofland (1971): Acts-Activities-Meanings-Relationship-Settings, and is cited in page 61 at *Qualitative Data Analysis* (Miles & Huberman, 1994); therefore I did not continue with Spradley methodology. Below is a summary of the most relevant categories:

Activities	Sessions	Number of Participants
Eating snack and chatting (led by the children at the beginning of each session)	All	100%
Warm-up exercises	All	75%
Creating/ brainstorming a story to be presented as a play	First	100%
Rehearsing the play through improvisations	Second	100%

Talking as a whole group in circle	First	100%
Drawing faces on the computer w/ Sodipodi (free-ware drawing tool)	Second	12.5%
Drawing characters by hand (led by Polly)	Third	12.5%
Drawing faces on the computer w/ WebDwarf & drawing pad	Fourth	12.5%
Writing script on Word	Second/Third	100%
Rehearsing the play with the script in hand (lead by children)	Second/Third	100%
Playing with Dramatic Faces interface	Second/Third	100%
Playing with the Storyboard interface	Third/Fourth/Fifth	100%
Creating Dramatic Faces	Second/Third/Fourth/Fifth	87.5%
Working on the GUI Storyboard	Fourth/Fifth/Sixth/Seventh	100%
Taking pictures of the play	Third/Fourth	100%
Recording voices and animating w/ pictures using the storyboard interface	Fourth	50%
Recording voices and animating w/ faces using the storyboard interface	Fifth	50%
Recording voices with Audacity	Seventh	37.5%
Revising and finishing putting together the digital play	Seventh	25%

How the participants related to VFT

The girls had no problem manipulating the tools presented, except for the drawing tools (only one girl tried).
They took turns typing their script, making the animation, controlling the record buttons, and adding frames to sequence.
The division of tasks happened organically, while they worked in groups.
Even when each one was creating her own character's face, another one would watch and give some comment or feedback.
They did not find it difficult at all to use the available VFT tools, but they were disappointed because the tools were not working well and they lost time with them.
The children did not get a good idea of what a Virtual Stage was.
I gave an explanation when students asked me during the time when they were filling the post-workshop questionnaire.

Relationship to each other

Students knew each other for the most part because they attended the same school.
There were a couple of very good friends; at least three pairs were very close to each other.
Two pairs embraced a third girl.
The youngest girl (who was ten years old) had a difficult time focusing for too long and her best friend followed her example. The two of them after a while were not as welcomed in the group because they were being disruptive.
There was a lot of laughing going around, but there was no indication that they were being mean to each other.
They did make some fun of each other, but it was all accepted and well received by them.
I did not develop a good rapport with the young girl, except for the first two sessions. After that, we started to have problems and she and her best friend would just argue with me and take as much of my attention as they could.
There was another facilitator in this workshop, Michael Horn, a graduate student from the computer department at Tufts.
He developed a better report with the younger girl and the group she belonged to.

The girls shared a computer without problem, except for Polly and Sara.
They all want to use the digital still camera and the video camera.

Table 6.1: Relevant Categories

6.3 Activities

From the activities shown in Table 2, warm-ups, brainstorming and rehearsals were developed to help the children to create their digital play. Even though my plan was to have the group produce only one play, the children preferred to form two groups and work on two separate plays. In this account, names have been changed to protect the identities of participants. For the purposes of this account, Group A consisted of Sara, Polly, Carla, and Kelly. Group B consisted of Ilana, Elvira, Natascha, and Leila. They brainstormed two stories and enacted them. After each group had enacted an entire play to the group, I picked the play from group A and asked group B to swap roles with characters of group A in order to demonstrate how Forum Theater works.

At that point in the technical development of the toolset, participants could create digital plays, but could not post them on the web. During the second session, they used DF to create cartoon faces. Through this process I learned that the interface still had problems. Some participants used freeware drawing tools such as Sodipodi and WebDwarf, but had some difficulty using them. They also wrote some scenes in Word and engaged well with the activities, except for the two youngest ones, Sara and Polly. Their engagement can be seen through the video footage (track 1) and through some verbatim data extracted from the tapes.

Sara, the 10-year-old, and Polly, her best friend, participated actively in the warm-ups, creating stories and enacting them. They would not stay still– but because I gave them considerable freedom in performing these activities – they persisted. They also had enough interest to write parts of the script, and took turns writing it in Microsoft Word, though they did not do this for more than fifteen minutes at a time.¹² They wrote for some time, and then left the computer, went outside the room to talk with someone, or go to see what the other group was writing. It became harder to engage them in the other computer tools I provided; the other tools required more time and focus to record each line and add pictures or dramatic faces to each character’s line (single speech). Together with their group they took pictures of their play, but the group had to stop shooting because Sara and Polly had no concentration to participate in the activity any longer. Sara would be asking to go to the bathroom or if she could go home before the end of the workshop (see kind of questions kids asked on table 1). The process of taking pictures of their enactment can be a long one.

From the fourth session onward, the other girls of the group decided they could not rely upon Sara and Polly. Sara got very upset, saying that the group was blaming her. When they sat together during the fifth session to use the GUI storyboard, they recorded the whole play at once, taking turns with the microphone and without realizing that one sound file could not contain more than sixty seconds of recording.

Sara and Polly were the only two girls that I could not convince to create some digital faces. After I insisted, each one of them created three faces, but did not try to put them

¹² Unless otherwise noted, the times are verified by study of the videotapes made of their interactions.

together as part of a sequence on the storyboard. Sara started resisting my directions by the third session. By the fifth session, she refused to engage in warm-up games, even though until then it was the activity she seemed to enjoy the most. That is when I realized that I had completely lost her and she was no longer benefiting from the experience. During the fourth session when I was alone with the whole group, Sara and Polly stayed outside of the computer room playing games in an adjacent room. Sara was angry at me and had a horrible attitude. I could not pay attention to her needs all the time and decided to let her go. While Michael was giving all his attention to this group, Sara would be more in control.

Group B, composed of Ilana, Elvira, Natascha and Leila, was more interested in the project as a whole. Ilana, Elvira and Natascha were eleven years old, but exhibited signs and behaviors that demonstrated more maturity than Polly (see discussion on developmental stages). This group took pictures of two scenes of their play, but unfortunately they had the script in their hands and a sheet of paper appeared in all the photos. Leila and Natascha put together one scene of the play using the pictures, but no one was happy with the quality of the pictures. Ilana and Elvira missed two sessions so the group did not have time to re-take the pictures. I did not intervene in their process of taking pictures. I would comment that they did not need to be reading the script aloud because sound was not being recorded. But they insisted upon it. It felt like they were concentrating on rehearsing the play. They directed each other in terms of intonation, body position, movements and staging.



Figure 6.2: Practicing lines before recording

They had a difficult time taking pictures in a detailed sequence, because the digital camera takes photographs too slowly, and they would have to back up their movements in order to capture them all. The process is very time consuming and might get tedious after a while. They enjoyed taking pictures and did not get bored with it, but they said it took too long (in response to a question I asked at the end of the workshop). Some of them wanted to re-take the pictures, but it was not an unanimous decision. Each member of this group created about five dramatic faces which they used in their production. As I noticed that the group would need more faces than what they had created, I created some myself.

The two groups finished writing the scripts during the third session, started enacting them, and then recorded the lines. The group of the older ones also created the cartoon faces of their characters. Polly decided to draw the characters of their play and not use the cartoon faces provided by DF. She tried to use the drawing pad and Dwarf, but she gave up rather quickly while the others from her group created some cartoon faces. During the fourth session the group who made the play about the teenaged girls (B) took pictures of

the first three scenes. During the fifth session group B recorded the lines and animated the first three sequences of their play (Excerpt 6.1).

They continued the work despite technical problems, progressing with their plays despite some behavioral issues with Polly and Sara. Two of the girls who were part of group A with Sara migrated to group B, which made Polly and Sara work by themselves. They did not finish their play. At the end, group B came for one extra session to finish their digital play. They used Audacity to record lines for the entire scene. Assistant Michael broke the audio track into sections for them. Natasha reviewed the scene in which her character appeared and completed it with the faces and I later created a SMIL file for it by hand, combining the wave and images to create the animation.

Chapter 7 - Colégio Estadual Landulfo Alves

7.1 Introduction

I made several improvements and changes to *VFT toolset* since the pilot study; therefore the goal of this second experiment was to test the toolset with a group of teenagers and find out if the tool was ready to the final study. I had to make sure that the new design features of the interface would facilitate the activities in order to study the learning goals of expressive fluency and argumentative and conflict resolution skills; at the same time I wanted to verify that the interface would engage these age groups as well. This was a short study and I was not planning on gathering conclusive data, but to have a baseline and be able to better prepare for my final study.

This experiment helped me to develop the coding patterns and themes in which to frame the analysis of my final study. It also helped me to get acquainted and updated with the culture of the teens in Brazil, especially of a population that I had worked for the first time six years ago during two workshops at the Bradesco Foundation in Manaus and in Salvador (Fundação Bradesco, n.d.), and in a few public schools in the periphery of São Paulo city while collaborating with the Future of Learning Group from MIT Media Lab in “The City that We Want” project (Future of Learning Group, n.d.).

7.2 The Experiment

The second experiment was done when the tool was considered ready to be studied. It was done for two weeks with daily before-school sessions. The methods of data collection included participant interviews, pre- and post-surveys gathering qualitative and quantitative data, field notes and video tape. I approached analysis of the data via a mixed method strategy.

The research questions below were asked during this study and will be answered in this chapter:

1. How do these students interact with *VFT*?
2. Does this *VFT* design allow the study of the learning objectives?
3. Is the interface ready to be used in a final study?
4. Is there any indication that *VFT* supports the improvement of argumentation, expressive fluency and conflict resolution skills?
5. What are the affordances of *VFT* as a collaborative learning environment?

7.2.1 Sampling, Settings and Time

This study took place at Colégio Estadual Landulfo Alves in Salvador, Bahia, Brazil, a state public high-school in my hometown. The Landulfo Alves School is located in the “low city” next to the port of Salvador, the older part of the city. Until the year 2001, it was an office space from the Brazilian Petroleum Company (PETROBRAS) and is a seven-story building. It was donated to the state to house secondary schools, and houses one high-school and one middle-school.

The student body is primarily composed of low- (80%) and low-middle-income class children (information given by school principal). Each school operated in three shifts: morning (8am-12pm), afternoon (1-5pm), and night (6-10pm) thus with a large turn-over of students (4,500 in 2006). The afternoon vice-principal selected ten students from her shift to participate in my study during the morning, in daily sessions from 9:30 am to 12pm.

I followed the IRB protocol (in Appendix 1) and each parent or guardian completed and signed a consent form. Since the participants were all between 14 and 18 years old, they also signed an assent letter. The experiment was conducted during a workshop entitled “Virtual Forum Theater”.

The group consisted of six school-age children from poor neighborhoods in Salvador. The criterion used to select the participants was the desire to take part in the proposed activity. Of eight students who were initially recruited, six participated in the study, but only five responded to both surveys. The spoken language was Portuguese. All participants lived in near-by neighborhoods. One participant was the chosen eighteen-year-old monitor who ended up getting involved with the project and became a participant. At the end of the first week, one eighteen-year-old girl joined the group. This eighteen-year-old girl ended up not participating in the whole study. The monitor (assistant) was a third year high-school student who agreed to receive a modest stipend to

help me out video taping the sessions and running some errands such as making copies and helping with the participants.

The group consisted initially of three girls age 14 (Mona, Iara, Julia), a boy of age 15 (Geraldo); a fourth girl, Isa, age 18, joined at the end of the first week bringing an important maturity to the group. All names have been changed to protect the identities of participants. Only three claimed to have had some theater experience (pre-survey), Iara for 2 weeks, Geraldo for 4 years and Isa for one play. Geraldo demonstrated ease and comfort in acting, but claimed to have a bit of stage fright. Iara and Julia claimed to have stage fright. Iara was so uncomfortable during the first few days of the study that she almost gave up and missed the second day. However, she responded to my appeals and decided to return.



Figure 7.1: Script writing

Julia (the most white-skinned in the group) assessed herself as too shy to go up on stage, but she did not demonstrate any sign of shyness when dramatizing within the group; she acted outspoken, spontaneously and not introspective at all. On the other hand Iara, who considered herself more or less shy to go up on stage, struggled and presented some resistance to enact, even only in the presence of her peers and myself. They all claimed to

dream to enact a play on a stage in a theater, but nevertheless three of them feared to be on stage.

The youth claimed to have few experiences with computers; they would prefer to use images rather than drawings in the digital play. They stated that they did not have problems relating to peers. The first four participants knew each other and knew Ronaldo, who was a computer lab monitor helping out sometimes in the afternoons. The relationship between them was a good one and except for occasional teasing there was no animosity between any of us.

The study took place in two different computer labs depending on which one was vacant during the time. Basically we alternated between two laboratories on a daily basis. The idea was to install *VFT* on four computers in each lab and save the project on the school server. However, the school server provided a slow and erratic connection and we did not manage to save the work on it. As a result the group had to use only my laptop through the whole workshop. They used the computers in their labs to copy the pictures from the floppy disks to the desktops and into a memory stick card, as well as to browse the internet and play music.

7.2.2. Relationship with Participants

In the case of the participants from Bahia, I had better knowledge on their expectations, behaviors and reactions to outside stimulus which enabled a more intimate and relaxed atmosphere. I was able to play with them and at the same time request their attention and focus when needed. It was more of a coach/facilitator and peer rapport.

These youth were very interested in surfing the web, which sometimes would take their focus away from *VFT*. I negotiated some time to surf the net using the school computers and this was enough to have their full engagement when needed.

7.2.3 Expectations

I wanted to provide a rich yet enjoyable learning experience to the group. It was important to have them recognize that this activity was special and they would make the best of it.

I was very happy and excited to work with the age group and social class that I had chosen. The vice-principal said that the school had given some theater courses to the student body before and they were very interested in the intersection of theater and technology.

7.2.4 Data Collection

I was not able to tape all the sessions, because I had an unexpected problem with the camera after the third session. I took notes and collected answers of the pre- and post-survey which were somewhat different from the ones used in the first interaction. The surveys were revised between the first and second experiment based on my research questions. The participants did not complete their surveys in my presence. They answered the pre-survey before the experiment started and the post-survey after we had finished it. I had only twenty minutes of video tape which did translate in few transcribed notes. The footage was from the time the group was improvising and writing down in paper the

script of their play. I relied mainly on the notes I took after each session. The *VFT* play created by the participants is also data used in the analysis.

7.2.5 Data Analysis and Coding Strategies

When I finished this study, I read the notes a few time, wrote the draft of a report using field notes and the qualitative and quantitative results of the surveys; in this process of analysis, I was able to find some patterns of events, activities and reactions to *VFT* that I later applied on creating the final descriptive code for both second and third experiments.

The ones that I applied to this study are in Table 7.1:

ARG	ACTIVITIES/PROCESSES THAT PROMOTE ARGUMENTATION SKILLS
BEH	KIND OF BEHAVIOR
CONF	LEVEL OF CONFLICT BETWEEN THEM
ENJ	ACTIVITIES ENJOYMENT
ENG	ACTIVITY ENGAGEMENT
INTERP	INTERPRETATIVE NOTES
OPR	LEVELS OF SENSE OF OPPRESSION
PICT	TAKING PICTURES
REC	RECORDING LINES
RHS	SCENES/STORY REHEARSALS/IMPROV
SHY	LEVELS OF PARTICIPANT SHYNESS
STOR	PERSONAL STORIES
SYNC	SYNCHRONIZING IMAGES AND LINES
SUP	BEING SUPPORTIVE OF EACH OTHER
TEAS	TEASING EACH OTHER
TECPR	TECHNICAL PROBLEMS
WRT	LEVELS OF WRITING SKILLS

Table 7.1: Substantive Codes of Second Study

I also organized the notes from the sessions into the descriptive matrix suggested by Spradley in Participant Observation (1980):

<i>Space</i>	A computer lab in a public school. The computers were at least five years old and were running Windows 2000. The room was big enough for the size of the group and for the warm-ups, as the PCs were located in a circle on the edges of the room.
<i>Actor</i>	School-age children (14-18 years old) from State Public School.
<i>Object</i>	Computers, digital cameras, video cameras, laptop, microphones, speakers.
<i>Act</i>	Talk, warm-ups, tell personal stories of injustice, improvise stories, laugh, use the computer, use <i>VFT</i> , take pictures
<i>Event</i>	A workshop on drama improvisation and computer-created dramatic presentations.

Time	Arriving and greetings, warm-ups, working on the proposed activities: creating a play, brainstorming, typing script on Word, reading the script aloud, taking pictures of the enacted play and of each other, directing themselves in order to take pictures of the play, using the GUI storyboard module to add the pictures and record the lines.
Goal	Create a digital play to post on the web.
Feeling	For the first four sessions, one girl thought she could not act well enough and did not want to be in the play, but slowly she engaged in. The girl with best dramatic expression lost interest on the activity once they decided on the plot, because she was interested in relationship issues between man and woman. There was excitement about creating the digital play, recording voices, taking pictures and manipulating both still and video cameras, and having a digital play with their pictures on the web.

Table 7.2: Spradley's Descriptive Matrix

Further considering the analysis of the activities and affordances of *VFT*, themes emerged and the following matrix (Table 7.3) represents how each design feature influenced the learning and fostered the improvement of the learning goals for this experiment. This matrix of design feature versus afforded learning is not complete because this study was short, there were some technical problems and I could not cover everything planned. It is important to highlight that the workshop per say provided activities off computer which also helped children to learn desired skills.

Design feature of VFT	Helps children	Fosters the improvement of
Creating a digital play	Learn how to record character lines and animate (synchronize images with sound) a digital play	Argumentation Skill and Expressive Fluency
Recording lines	Have concentration, emotion and the right voice intonation, organize and summarize ideas	Argumentation Skill
Synchronizing images with sound	Learn animation, practice visual artistry	Expressive Fluency

Intervention Activity	Helps children	Fosters the improvement of
Improvising Scenes	Practice ways to argue ideas in character	Argumentation Skill and Expressive Fluency

Table 7.3: VFT's Design Features

7.2.6 Validity and Reliability

The triangulation was somewhat compromised because I was not able to tape record all the sessions, therefore the validation of my observations were backed-up by the surveys without a third source of verification, on the other hand the survey's quantitative data had a degree of triangulation with their qualitative answers and my observations (data triangulation). The analysis and interpretation of the digital play they created also contributes to validate the observations.

7.3 Activities

I spent the first week trying to install *VFT* in the eight desktop machines and connect them to the school server without success. In the mean time, I kept the group away from *VFT* working on improvisation, writing their script on Word and taking pictures of their scenes; I could not hold that situation for much longer and at 7th session, they had to start recording or else they would not be able to put their virtual play together.

The protocol was basically the same used at the first study. I did warm-up exercises for fifteen minutes and then they would undergo different tasks depending on what they had already accomplished. This group wrote the script of both scenes beforehand, because I did not give them my laptop to start recording the lines in the hope they would use the school computers. They took the pictures of their enactment before recording the lines and realized later that they had taken very few pictures.



Figure 7.2: Dramatic Faces at Landulfo Alves

Initially, I tried to discuss oppression with the students, but they did not seem to understand the meaning of oppression, and they could not articulate an oppressive event in their community, or their life. I changed the topic to injustice and it seemed easier for them to relate. The group of five brainstormed some situations where they found injustice in their lives and decided to explore the issue of their monthly bus pass (they would pay half of the bus fare when holding their student bus pass). Not everybody was completely in agreement with this theme, especially Julia, who had enacted the day before a personal story of injustice around personal relationships between her, a boy she used to like, and her female cousin.

They created two scenes for this play through improvisations and wrote down a sketch of the script after the enactments. Writing the sketch after they improvised helped them when they were recording the lines of their characters. They improvised one scene at a time and chose to rehearse them more than once until we all decided that it was good enough. Because the process of picture-taking is very time consuming and requires

patience, they chose to add pictures of the character while delivering his/her part. In that way, a sequence had a mixture of frame by frame of their enactment (photos of the play being enacted) and the image of the character speaking and gesticulating (see track 8).



Figure 7.3: Rehearsal of student bus pass scene

The participants used the script to read the lines when they were recording. This was not necessarily a good practice because they lost the emotion in their voices. There was not enough time to ask them to improvise before recording the lines, because they had only the last two sessions to put it all together. I determined not to repeat this mistake with the other groups. Changing the design of the experiment so that the group improvises the scene every time before recording the lines was extremely necessary.

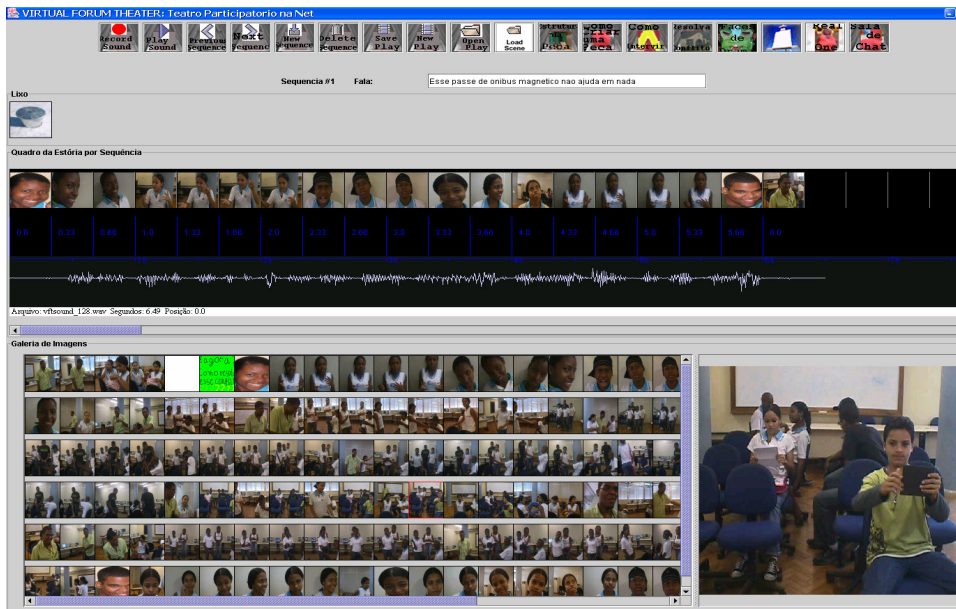


Figure 7.4: Screen-capture of VFT toolset at Landulfo Alves

The students did not have much of a chance to animate their scenes. They had no more than 4.5 hours to record and animate two scenes. This was not enough considering recording out of memory errors and the need to take more pictures. But they were able to see the digital play on Real One at the last session, because I added some pictures to one of their scenes at home.

7.4 Results of the Work and its Impact

This study helped to test the tool and to reinforce the engagement of teens with it. Even though the students spent only three sessions using *VFT*, they enjoyed it and had no difficulties manipulating it.

7.4.1 Survey Results

According to interviews and surveys, the participants found *VFT* to be useful and they loved the idea of *Virtual Forum Theater*, but it was not practical to have them all around one laptop while they were creating a digital play. The maximum number of students working on the one laptop was usually three; therefore there were always three of them using other computers in the lab at a time. I asked them to take turns as much as possible, but at the end, their exposure to *VFT* was short. Even given a short study and short experience with *VFT*, their answers to the post-survey were positive.

On a 5-point Likert scale, they considered themselves relatively shy to be on stage, except for Julia who claimed to be very shy to be on stage (low=2/high=5). They also did not have much experience with computers (low=2/high=3) and used it mainly for word processing, internet games, music and chat.

They all claimed not to have any difficulty to relate to peers. On a 5-point Likert scale, three out of five answered not to be much conscious of community problems (low=2/high=5), while the other two are very conscious. Some of the community issues cited by them are fights on the street between husband and wife and others, drugs, bad smells on the streets, dirty paintings on the walls and students misbehaving in school. These students live in poor neighbourhoods and the issues faced by them are numerous.

Score	1=low	2	3	4	5=high
Shy to perform in a theater stage 1=not shy 5=very shy		Mona Geraldo (2.5)	Iara Isa		Julia
Experience w/ Computer		Mona Julia Isa	Iara Geraldo		
Difficulty to relate to peers	Mona Julia				

	Geraldo Isa				
Conscious about community issues		Iara Mona	Geraldo		Julia Isa

Table 7.4: Results of pre-activity survey

I presented two scenarios involving problems between peers and they had to give their solution to the issues. The first one was about a boy playing basketball in the school gym and being bullied by another. There was another boy in the gym that saw and heard everything. Each student was asked what he/she would do if he/she were the boy being bullied (Saul), and if he/she were the bystander. Three of the five answered that they would either speak back to the bully with the same rudeness or challenge him to fight. Two students said they would keep playing and ignore the bully. As a bystander, all of them, except one, would support Saul and protect him against the bully by teaching Saul how to do hoops and playing with him in the gym. One student said that she would help Saul to fight with the bully (see pre-survey on Appendix 3).

The second scenario was about Joana, a girl called Tomboy. She had a group of male and female friends and used to play with each group separately. One day the girls called her tomboy in front of the boys and said she would not be one of their friends anymore if she continued to play with the boys. The students are asked what to do if they were Joana, if they were the other girls and if they were one of the boys. One answered she would stop playing with the boys while the others would ignore the girls and continue playing with the boys. One of them would react rudely and call the girls for a fight. If they were one or all of the other girls, they would not interfere in Joana's life and let her be. One says that she would try to talk in private with Joana asking her not to act like a tomboy or else her

popularity would be jeopardized. All the students would support Joana if they were the boys.

One can see through these scenarios that some of the teenagers would resort to violence; this suggests they would probably benefit from discussing and rehearsing these issues more in order to practice better solutions to situations of conflict. The workshop was too short to show any improvement in their abilities to resolve conflict, but by having played out some choices through improvisation, they seemed to realize that they learned new ways to solve conflicts as one can see from their answers to the post-questionnaire (Appendix 3).

Almost all of the five students believe that they improved their expressive abilities (low=3.5/high=5) for different reasons. One student realized that she did not need to be shy all the time and the experience was very helpful for her to overcome her shyness. Another claimed that the work helped her better understand the problems she did not know how to solve. Another claimed that he will look for more solutions when he finds a problem. Julia said that when one has several alternatives to solve an issue then it is easier to choose one. One girl argued that she learned how to pronounce correctly some words and therefore she can express herself better after the two weeks of work on *VFT*. This answer was similar to the one of a participant in the first study who wrote that “you learn more computer stuff and even new words.”

They were asked if the activity helped them learn new ways to solve personal problems and the answer shows a positive result (low=3.5/high=5) as well as for solving

community problems (low=3.5/high=5). Given that we worked on an issue that involved all the students as a population, I consider this result a very good one given the short amount of time we had. This result might indicate that they were able to transpose the way they solved the big problem to their personal lives, because we only worked on personal issues during the second session.

On a 5-point Likert scale the group claimed not to have gained much experience with the internet (low=1/high=5) or computers (low=1/high=4). This makes sense because they used the computer and internet less than planned. On the other hand they all learned something about dramatization (low=1/high=5) and creating *VFT* plays (low=2/high=5). According to their answers in the post-survey, they also believed to have learned teamwork (low=2/high=5) and something new (low=2/high=5), such as taking pictures correctly, speaking with proper pronunciation and intonation, working in group, creating a digital play, creating animation sequences, manipulating a laptop, and solving a conflict given the existence of several resolution paths .

They said that it makes sense to create a digital play because “it is like a movie but with photos”, “it is like a cartoon magazine”, “one always learns interesting and important stuff”, and because “it is different and better than plays enacted in real stage”. Coinciding with this answer, they also claimed that it makes sense to enact the digital play on a virtual stage (web browser) because “it is more interesting than a physical stage”, “it is a good way to show everybody what we learned with this theatre”, “there is no audience and the actor/actress feels more relaxed and comfortable”, and because “the stage is the

computer”. When inquired about the differences between regular theatre and virtual theatre, they said that “one pays more attention to what one is doing for the virtual play while on stage one might get nervous and do things wrong”, that “regular theatre requires lots of dramatization and live emotions while the audience is seeing you”; “digital is like fashion models posing to take pictures, and the regular one is composed of live emotions”.

Julia claimed not to find it easy to manipulate *VFT*, but at the same time, I observed evidences on their behaviours and actions to have learned it quickly and dealt well with the tool. She explained that “one needs to be patient to deal with *VFT* and I am not patient”. Another one said “at the beginning it was not easy, but as soon as I learned it then it was fine”. They all claimed to have had fun with *VFT*, except for Julia (low=1/high=5). The answers described in these last two paragraphs demonstrate the potential interest they had in the tool and, combined with my observations of their active role while interacting with *VFT*, provided an answer to the first research question.

Score	1=low	2	3.5	4	5=high
Express oneself better			Geraldo	Iara Isa	Mona Julia
Learn new ways to solve personal problems			Geraldo	Iara Mona Isa	Julia
Learn new ways to solve community issues			Geraldo	Iara	Mona Julia Isa
Obtained experience w/ Internet	Iara Geraldo	Julia		Mona	Isa
Obtained experience w/ Computer	Iara Geraldo	Julia	Isa (3)	Mona	
Learned about drama	Geraldo	Julia		Iara	Mona Isa
Learn to create digital play		Julia	Geraldo	Iara Mona	Isa
Learn something new		Julia		Iara Mona Geraldo	Isa
Make sense to create a digital play				Iara Mona	Julia

				Geraldo	Isa
Make sense to act on a virtual stage				Iara Mona Geraldo Julia	Isa
Easy to manipulate <i>VFT</i>	Julia			Iara Isa Geraldo	Mona
Had fun with <i>VFT</i>	Julia			Iara Geraldo	Mona Isa

Table 7.5: Results for post-activity survey

According to Schank et al (1993) any mission might fail to capture the imagination of some students and efforts to attract everyone might result in a homogeneity that stimulates no one. Julia lost her excitement when the group switched from personal relationship conflict to the bus pass one, not surprisingly she scored low (1 or 2) on most of the items, except for the importance of a virtual play and for her own learning with this work. Since this is a small sample (5 out of 6 answered both questionnaires), her score brought most of the results down, and nevertheless one can still see that *VFT* has the potential to expand the conflict resolution, argumentation and expressive fluency skills of youth when they can participate in these kinds of activities for a longer period of time.

In this experiment I observed collaborative learning while creating the script through improvisations and discussions and while creating the animations, but there were not enough conclusive data.

7.4.2 Their Digital Play

This group created a play about the student bus pass, which they considered an injustice. Students in Brazil pay half of the bus fare and they have to show their student ID in order to pay the half every time they are riding a bus. About a year ago the private bus companies from Bahia decided to change the local system. The companies came up with

a bus pass for the students which work in a rather odd way. The students need to recharge the card once or twice a month, but they can not ride more than four buses per day with this fare. Most of them (at least the ones who lived in the school neighborhood) need to pay a half fare to ride to the office where the card is recharged and another half back home; therefore they would lose money to recharge the card. They also claimed that it was hard to know exactly how much one would spend in bus for 15 or 30 days in advance and the amount one did not use would be lost at the end of the month.

Clearly it seemed to be an unfair deal for them. They lost the ability to ride more than four buses per day and had to spend extra money to charge the card. There are also students whose parents earn money daily or weekly. Therefore they have no way to pay for those passes in advance and their children have to pay the full fare. Hard to think that the city mayor lets such an injustice happens. From the point of view of the bus company, they receive money in advance and maintain less money on the bus in case of robbery which nowadays is not a rare event in Salvador.

The teens created two scenes; one at the bus stop and riding the bus and the other at the suburban train. They intended to show the situation of the most popular modes of public transportation. Their plot approached the problems caused by the bus pass and by the arbitrary position of the bus staff, the one who collects the fares inside the bus. On the train they depicted the dirty conditions of the ride, but at the same time the real inexpensive fare (Script at Appendix 2).

Their script seemed appropriate to their age and struggles and it was a sign of their social awareness. Some of them have been part of street demonstrations against the student monthly pass and they knew exactly how it impacted their lives and of other hundred thousands of students from the city.

7.5 Conclusion

I planned to run correlation and Chi-Square tests relating amount of time using *VFT* and improvement of argumentation skills and expressive fluency. This was not possible given the short exposure using the tool and the small sample.

In terms of design of *VFT* tool, I implemented a way to save the play in the local machine (client), because this group could not connect to the internet and there was only the option to save the play at the school server. I also fixed a bug on the sound recording (out of memory message) and a bug on Dramatic Faces (DF). In fact, they did not have time to use DF and did not seem to like it much, perhaps because they did not have enough time to master it and learn how to create emotions out of their faces.

Based on survey responses regarding the learning goals studied and my own observations, there was a good indication that this version of *VFT* facilitated the learning of argumentation and expression skills and could be used in the final study to gather more data and further investigate how the learning takes place.

Chapter 8 - Rotary, Kabum, and Aplicação

8.1 Introduction

The final study was conducted in the public school system of Bahia, Brazil. I studied three groups over the same period, which differed in age and settings. The groups were from different neighborhoods and different public schools. I will discuss each group individually in the next sections and compare them as appropriate. The goals of this last experiment were to carefully study the learning affordances of *VFT*, gathering data to prove or disprove my hypotheses, and at the same time to ascertain the relevance of *VFT* to children and youth of low-income background.

Like the others, this experiment was conceived as a qualitative study with some quantitative data. The quantitative data was used to triangulate the qualitative one. This study involved three groups of students in twice-a-week sessions of two hours each, for three months.

Like the previous iterations, this iteration uncovered interface issues, suggested possible design improvements, indicated possible changes that could be made in the actual learning intervention, and suggested new ways to work with youth.

Several research questions guided the third experiment. I studied these questions through the whole study and with all three groups. I present a discussion of results pertaining to these questions in section 8.11:

1. How does *VFT* extend and augment face-to-face dramatic activities for pre-teens and teenagers from low income classes?
2. Is there any indication that *VFT* supports the improvement of argumentation, expressive fluency and conflict resolution skills?
3. How does enacting meaningful and realistic social issues generate an “object to think with” that allows the exchange of ideas and discussion about these thematic problems?
4. How does *VFT* support collaborative learning?

8.2 Sampling, Settings, Time

A total of twenty-four pre-teens and teens distributed in three groups of participated in the study at three distinct locations. These locations included The Kabum School of Arts and Technology at Nordeste de Amaralina, Rotary State High School at Itapuã and Aplicação Anísio Teixeira at Paralela in the city of Salvador, state of Bahia in Brazil. The studied was initiated in September and finished before Christmas. The ages varied from eleven to eighteen years old and each group had between six and ten participants.

8.2.1 Kabum School of Arts and Technology

The first group of children participated in the study at the Kabum School of Arts and Technology, which functions as a community center belonging to a non-profit organization. The school provides digital arts activities to youth from all areas of town who attend public school. The participants were children who had previously registered for (i.e., requested participation in) other activities at the center, but had not been selected for those activities. The children were contacted by a staff member of the center and

indicated interest in participating in the activity. However, the last two girls who joined the group were brought by participants themselves. This first group will be called the *Kabum group*.

The Nordeste de Amaralina neighborhood in which this group's participants lived is said to be violent and dangerous, which may be a result of the level of poverty (Oliveira et al, 2000; Espinheira, 2001). The art school is located in an area next to three public schools, including elementary, middle and high schools. The physical location of the center is called "Beco da Cultura" or "Culture Alley"; all the schools and cultural centers of the neighborhood are located on that one street. The so-called "dangerous spot"¹³ of the neighborhood is deeper in the hills, away from Culture Alley. This neighborhood is adjacent to a middle class neighborhood with wealthy families, so it is not uncommon that grown-up and youth "gangs" go downhill to the beach area to rob cars, apartments and people from the wealthy area¹⁴.

Considering the history of violence, poverty and lack of social cohesion in such neighborhoods, one would expect that the children are constantly exposed to scenes of violence and crime. Research (Bingenheimer, Brennan & Earls, 2005; Obeidallah, Brennan, Brooks-Gunn & Earls, 2004) shows that scenes of fights and crime increase the chance that the children will grow up to be violent or criminal. As Earls says, "Violence prevention serves not just to reduce a propensity for violent behavior in the person

¹³ Area perigosa – toca do leão

¹⁴ News items describing these events can be found in town newspapers, including www.atarde.com.br.

targeted, but benefits the social orbit in which the adolescent functions" (Psychiatric News, 2005).

This is one reason why the non-profit organization "Cipo" opened the Kabum School of Arts and Technology in that area of the city. Cipo works with disadvantaged children, teenagers and young adults using communication and technology in order to include them in society (RTS (n.d.), SoudeAtitude (n.d.)).

The community center has good computer rooms and broadband Internet connection. Since the center was doing me a favor in recruiting the children and lending me the space to perform the experiment, I had low priority in using the computer rooms and even though they had good computers, the ones available for my use had a problem with their sound cards and could not make sound recordings. I asked them to repair the problem, but they did not, and the room containing the computers seemed unsuitable for the other activities involved in *VFT*, including discussion and dramatic warm-ups. Thus I instead used an empty classroom and the six participants shared my laptop during the study.

Those children were eager to participate in projects offered by the center, but had not had a chance before. They all came from lower-middle-class families with very similar background and upbringing. Four of them were selected by the center, while two others were brought by the girls who were part of the initial group of four. In the following, all names are pseudonyms to protect the identities of the children.

Those children studied in public schools, with the exception of one boy who attended a Catholic private school. The three girls were in the same public school next to the community center; the boy from Rio Vermelho attended the public school near his home. Three children lived with their grandmothers, even though two of them had parents (or at least a mother) nearby. One possible explanation for this was that their grandmothers could care for them during the week, and lived next to the best public school in the area.

Five of these children lived in Nordeste de Amaralina; Danilo lived in Rio Vermelho, adjacent neighborhood. The girls attended 5th grade, Danilo belonged to 6th grade, while Marcelo went to a Catholic private school, but attended 4th grade. Marcelo lived with his grandmother and did not seem to be any wealthier than the others.

Many participants reported that they lived with their grandmothers, perhaps to enable their mothers to work full-time. Lucia is a cousin of Marcelo and even though she has a mother, she lived most of the week with her grandmother as well. It was also the case with Tania, who said she would spend the week with her grandma.

Participants had almost no experience with theater (except for performing a couple religious plays at school or church) and they said that they joined the study already attracted by both drama and Internet.

The entrance survey indicated that experience of the participants with computers varied from little or no experience to some computer literacy. Danilo seemed to have a slightly

better preparation for the activity than the others, perhaps because he had computer with Internet connection at home. Lucia had no experience with computers and when the group used Microsoft Word in the second session, she said it was her first time using it. Tania claimed she had the opportunity to use the computer sometimes in an Internet Cafe where her cousin works. Marcelo claimed to have a bit of experience with the Internet, but that experience seemed very limited during follow up and personal interviews (tape recorded). Danilo was the only one with experience with PC's and Internet and he was the big "helper" of the group. Noelia, who joined the group by the eighth session, also had a PC at home, but no Internet connection; therefore she also knew how to manipulate my laptop well. They all had some trouble with the laptop's touchpad mouse at the beginning.

8.2.2 Rotary School

The second group consisted of five youth, all age sixteen, lived in the same neighborhood. They attended the Rotary Public State School located at Itapuã. This neighborhood is located next to the one where I lived during the study; it contains several areas where the population is lower-class, including the neighborhood in which all participants lived. None of them had computers at home during the time of the study. They were all in their first year of high school (9th grade) and somewhat engaged in extra-curricular school activities.

The Rotary's art teacher suggested fifteen students as possible participants; seven of these joined the workshop. The five students who attended the first session stayed with the study from beginning to end; two more joined later and then left before the study was

complete. The group consisted of five girls and two boys. I will refer to this second group as the *Rotary group*.

This school is located in Itapuã, a neighborhood in Salvador along the beach, almost the furthest school from the urban center. Itapuã used to be a relatively rich area where people kept beach houses and came for the weekend, even though there was always poverty there as well. The areas farther from the beach in the hills are filled with simple houses built by their owners, who sometimes do not possess the land legally, but occupy the space and build brick houses without plans or blue-prints. Most children who attend the school come from that hillside, but there also others who live closer to the beach in better houses. Those are not rich children, but rather from middle-class families who might not have enough money to send them to private schools. The families who are more upper-middle-class live in condos and do not attend this school; lower-middle and middle-class children comprise the student body.

According to their survey answers, their neighborhood exhibited problems of violence, drugs, prostitution, lack of friendship, jealousy, lack of communication between neighbors, lack of companionship, loud music, and too many little children.

This group started with eight teenagers, one of whom was a "monitor" student whose intended role was to help me to video-tape the sessions. At the beginning, the monitor (who likes to write plays and novels) acted as a participant in the group while I video-taped. He made copies of surveys to administer to the participants and was very

outspoken as a group member. After five sessions, he stopped coming. By the 10th session, two of the girls stopped coming and the group returned to its initial size of five participants. Participants were all between 16 and 17 years old and were all in 9th grade (1st year of high school), except for the monitor, who was 18 and in 11th grade.

Participants in this group had relatively little theater experience. Only one of the five participants had some theater experience in the school (3 months), but he was somewhat shy and was not eager to participate in our play. I will call him Tadeu. Rebeca also had done some theater at her church (2 months) and at school in the context of classroom projects. Irene, the most outspoken and outgoing person of the group, had participated in theater during classroom work and also outside of school for three months. Adroaldo and Lillian had participated in theater in school as part of classroom work.

Many participants in this group considered themselves shy or not outspoken. Adroaldo and Rebeca were very shy and would speak very little at the beginning. Rebeca was so soft spoken that I could barely hear her and had trouble capturing her voice in the videotapes as well, except toward the end of the study. Tadeu did not present himself as shy, but he did not speak much. Instead he was a very good observer and always ready to help with computer tasks (the names are pseudonyms to protect the identity of participants).

All participants had some experience with computers and Internet except for Rebeca, who did not have facility with manipulating chat or web mail, and asked for help from

her peers. At the end of our work together, she had learned how to access orkut, msn, etc. In general they were all eager to go on-line, search the web for music, fashion, soap-opera summaries, etc., and to connect to on-line chat rooms.

Participants all joined the study as a before-school activity (they attended school in the afternoon) because they were interested in theater as well as the Internet. Some were more interested in the technology side of the activity than others. Given the way they behaved during the warm-up activities, it was clear that they were shy and not totally comfortable with the drama aspects. Adroaldo – while shy – was more engaged in the dramatic activities than the others. On the other hand, they were all very engaged in the creation of the play and in all of the improvisations that they did to form the final play.

8.2.3 Aplicação Anísio Teixeira

The third group was part of a school theater troupe. In this sense, the Aplicação group differed from the other two, but they had the same age range as the Rotary's youth and a similar economic situation. The vice principal from the morning shift asked if I wanted to work with this theater group, because she thought it would be an extension of what they were already doing. The theater troupe had about twelve youth on it, but not all of them attended the sessions. The core group was consisted of four boys and three girls, though two other girls attended sporadically. Two of the boys were finishing high school; one of them was the leader of the theater troupe. All the others were finishing either their first or second year of high school (9th or 10th grade).

Aplicação is located next to the teacher professional development center of the state of Bahia, which is next to the government center. This neighborhood is relatively new compared to the five-hundred-year-old city in which it is situated. (Salvador is the first capital of Brazil and first large city). A new government center was built in 1980 in an area which formerly was farmland, creating a new area for city development. Nowadays several neighborhoods are distributed around the center located at Paralela. These neighborhoods were planned by the city and real estate developers constructed both middle-class and upper-middle-class residences. There are not many self-built houses between this neighborhood and the beach, but thousands of them are located in adjoining property in the opposite direction from the beach.

Aplicação and Rotary are considered good state schools, but it seemed to me that Aplicação has more resources than Rotary, including a better-equipped computer laboratory and faster Internet connection. As with the other public schools, this one was also composed of students from lower- and lower-middle-class families. The students who participated in this study seemed to know how to express themselves better and have better writing skills than the ones from Rotary and Landulfo Alves.

I met with this group at around 6pm, twice a week. This was a problem for the girls whose parents worried about their safety on the way home and did not want them to stay in school past 7 pm. They all lived in the immediate vicinity of the school, but some took a bus to get home from school.

This group had been working together for more than four months in the context of the theater group. They put together one play with the assistance of some teachers and – at the moment we decided to work together –they were planning to create a play on their own. They had some ideas and settled upon a final one after we brainstormed about a script. Initially they thought they could try to work by themselves with the same script theme and keep *VFT* play very short, but that objective was not accomplished. They started working on another somewhat similar play, and this took away from some of our own time together, because they tried to use the time we had together to rehearse the other (non-*VFT*) play they were creating.

8.2.4 Relationship Established with Participants

The relationship between me and the participants was productive. I took the role of a friendly mentor who was able to laugh with them at their jokes and mistakes, and get their attention and active engagement when necessary. Sometimes they discussed personal issues and conflicts with me and with the group. The Kabum group would call me teacher as a sign of respect, but most of the teenagers called me by my first name.

The youth from Aplicação were very funny, creative and playful, which somewhat allowed for an even more relaxed environment. As a director I remained in the background and avoided giving directions; I preferred the participants to conduct their script as they wished. Perhaps I could have pushed them to improve their acting skills, but there was not enough time for that and it was not my main concern.

In relation to the tool, I helped them with the process of recording. I made sure they had the appropriate intonation and succinct lines. I asked them to repeat each line a number of times until they could say it well enough to record the sound. During the process of choosing images, I gave them some tips and they manipulated the pictures by themselves. After a while I noticed that the Kabum children were too slow in picking which picture to use, either because they were slow in manipulating the touchpad mouse, did not know to click on the photo to see it larger, or they could not decide which picture to use, so I directed them more closely during that process, always giving some feedback.

As a researcher I was very attentive to their behaviors, interactions with *VFT*, and the learning that was going through the activities. I was always ready to document all that through interviews, video-tape and at the end of the day field notes.

All the participants enjoyed working with me and requested good-bye parties. They also asked me to continue working with them at the beginning of the next school year, but I had to decline their offer.

8.2.5 Expectations

I hoped to see all the participants coming to every session, enjoying and engaging with the warm-ups and with the planned activity. After identifying the shyest participants, I expected them to be less shy by the end of the educational intervention and to be able to express themselves better: to become more articulate and argue their point of view more confidently. I also wanted them to relate well to each other; therefore I emphasized

bonding exercises during the first three weeks. Above all, I wanted them to enjoy the sessions and the activities planned for the study.

I was not planning to work with participants at young age (partly because of the difficulties encountered with younger children during the first study) and it was a surprise to me to find out that the Kabum's participants were eleven years old instead of thirteen as I had requested.

On the other hand, they were very eager to work with *Virtual Forum Theater* and their excitement kept me going. I thought it would be interesting to understand how *VFT* would engage these children and if it would improve their argumentation skills and expressive fluency. My concern was with their writing skills and the age difference from the other groups, but I decided to work around it; besides, I did not want to deprive these children of this great learning and growth experience.

Rotary's participants seemed to me as the perfect match given their age, the existence of a couple shy participants, and very few experience with either theater or technology. My challenge was to keep them engaged and look for enhancement of expression skills.

The youth from Aplicação expressed willingness to participate on the study, but were worried about how much time they could put on it. I decided I would take this group as a partner for the Rotary one. I would make sure this group created a digital play, so that

Rotary could see and the two groups could interact and exchange solutions to the issues presented by their plays.

I was not sure if I would be able to measure the learning goals with this group, since they would not be able to work for three months with me and the sessions would be shorter; therefore I wanted them to understand what a digital play was, to learn how to use *VFT*, to have fun with the activity and I wanted to observe their reactions to *VFT*.

8.2.6 Data Collection

For this study, I was able to obtain pre- and post-activity survey answers from almost all of the participants in the three groups. I developed another set of pre- and post-activity survey questions for teachers of the participants and I was able to collect answers from at least one teacher of each participant. I took notes and transcribed the audio of the footage for the three groups studied. The participants also completed the “*Myself and Technology*” (Bers, 2005) survey.

The instruments I planned to use for qualitative and quantitative data collection included (Appendix 3) :

- A pre-activity questionnaire inquiring about demographic, computer and drama experience, self-assessment of argumentation skill and expressive fluency, as well as questions about case studies to assess their ability to resolve conflicts.
- A pre-activity and post-activity survey inquiring about their experience with on-line tools and on-line communities, called the Positive Technological Development Survey (Bers, 2005) (*Myself and Technology*)

- A post-activity questionnaire inquiring about the whole experience with VFT, how much one learned in terms of drama experience, expression and conflict resolution.
- Field notes taken at the end of each session
- Video tapes of all sessions with VFT
- Notes taken while watching video tapes
- Computer logs of their interactions through online chatting
- Their digital plays
- Interviews with participants
- Pre-activity and post-activity survey for teachers of participants

The “*Myself and Technology*” survey was applied to gather a self-assessment of technological fluency. All surveys are self-reported; the participants are scoring themselves when answering each question. My observations of their behaviors and the teacher’s questionnaire help to interpret results from these self-reported surveys. “*Myself and Technology*” is used by Prof. Bers to assess the level of positive development allowed by technology-driven interventions. I applied this survey to help triangulate data, given the technological emphasis of *VFT*.

“*Myself and Technology*” contains a series of statements categorized among 6 C’s (refer to section 2.10): Caring, Character, Competence, Confidence, Connection and Contribution. The participant is asked to indicate how strongly he or she agrees or disagrees with each statement. Each one of these C’s is related to technical computer and Internet skills. Since connection to the Internet through chats and virtual communities was

not a major part of this study, it did not make much sense to evaluate any improvement on this area, but mainly to have a sense of the participants' technological background.

The Confidence dimension is the one most related to argumentation and expression abilities, because one needs to feel confident in order to improve these skills. The competence dimension is measured in the survey by five statements, three of which are relevant to my study (questions 10, 18, and 24 in Table 8.1); the Character one is measured by four statements (3, 14, 20, and 26) related to expressive fluency supported by technology. The Contribution dimension is another where I should find improvement after my intervention. Results for these items are presented in section 8.10.

Qt #	Caring	Arg. Skill	Expr. fluency	Tech. fluency	Awareness
1	When working with someone on the computer, I make sure that they understand everything I am doing.				
4	I am part of a community on the Internet where I help others or get help from others				
9	It is important for me to teach others the things that I already know about computers				
21	I use the computer to learn about the people who I care about				
27	I am willing to help other people when they have computer problems or questions				
	Character				
3	I can express myself, my ideas, and what I like by using the computer		X		
14	I know how to make computer projects (e.g., images, animations, songs, videos, robotic constructions) to express things that I like and think are good		X		
20	I am able to learn computer programs that help me express myself in different ways.		X		
25	I know what is good and bad things about using the Internet				
26	I feel good about myself when using the computer		X		

28	If I encounter something bad online, I would tell others so they would avoid bad experiences				
31	I respect rules and only do things that are not bad online				
32	I do not engage in behaviors that I think are bad when using computers				
	Competence				
10	I am able to create or design projects on the computer from an idea to a finished work			X	
12	I can debug or fix computer projects or programs when something goes wrong				
18	I know how to make or design my own projects with computers (images, animation, songs, robotic, constructions, etc)			X	
24	I have a high-level understanding of how a computer works			X	
30	I know how to use the computer as well as, or better than my friends				
	Confidence				
2	Learning about computer stuff is easy for me	X	X		
11	I feel confident that I can learn how to use a new computer program	X	X		
13	I know that I can figure out how to create or design projects on the computer from an idea to a finished piece of work	X	X		
19	I feel confident that I can figure out how to use new functions of a program on my own	X	X		
	Connection				
5	I have met new people through the use of computers				
8	Because of my computer skills, I can connect with people in many different ways				
15	I have found groups on the Internet who support what I like				
16	I use computers to connect with other people who think and feel the same way as I do				
22	I use the computer to be part of different groups and communities				
29	I use Internet to keep in touch with people I know				
	Contribution				
6	I can imagine new ways of using computers to make the world a better place				X
7	I believe that by using computer technologies people can find new ways to give back to their communities.				X
17	I can give back to my community using my computer and/or my computer skills				X

23	I can imagine good ways to use computers for our society				X
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Table 8.1: Intersections between VFT's learning goals and PTD's C's

I noticed that some participants had difficulty answering the *Myself and Technology* survey. Some of the answers contradicted my experience with them during our three months together. In most cases, the second time they answered the survey, (at the end of the study) the answers more closely agreed with my observation of each student. The younger group claimed to have started using the Internet a few weeks after the intervention began (3 out of 5), but they answered the survey as if they had already connected to the Internet at the second session when they answered it. The younger group tended to answer that they were more fluent and knew more than what I had learned through observing their use of *VFT*, informal conversations, and recorded interviews.

The pre-activity and post-activity questionnaires had less qualitative data than I expected in response to the "long answer" questions. The participants in general were very succinct in their written responses, but I was able to obtain more lengthy answers during videotaped interviews.

Field notes contained descriptive and selective highlights of each session with behavior observations and activity accounts (participants reactions to the tool and activities and their interactions among themselves and with the facilitator) The video tapes documented a large amount of qualitative (verbal) data from discussions, play improvisations, and *VFT* generated activities; relevant discussions were transcribed into text form and some are presented in the findings section. The translation of the children interactions seems like rough English, but I tried to preserve the character of the talk. They often delivered

incomplete sentences; to represent this, I translated them into incomplete sentences in English. The translation from Portuguese has some grammatical errors that mimic their speech.

Interviews with the participants and the teachers' survey were very important to validate my observations, because some of the questions were directly related to the learning studied. The digital plays generated by the youth were also analyzed in order to assess how they addressed argumentative, conflict resolution, and expression skills.

As I observed, the groups responded well to discussions, so any time I had a chance I would try to engage them in discussions and decision making activities, to compensate for the lack of Internet-based debates between the groups and to gather more data about their capacity to argue and resolve problems.

8.2.7 Data Analysis and Coding Strategies

The experience of the previous (second) study (in applying open coding according to Strauss (1998) and coding techniques presented by Miles & Huberman (1994)) showed me that there was a need for descriptive codes that provide insight into what is going on during a session. During this last experiment I created further descriptive codes even though lacking in interpretation:

ARG	ACTIVITIES/PROCESSES THAT PROMOTE ARGUMENTATION SKILLS
BEH	KIND OF BEHAVIOR
BEHL	LEADING BEHAVIOR
CONF	LEVEL OF CONFLICT BETWEEN THEM
ENJ	ACTIVITIES ENJOYMENT
ENG	ACTIVITY ENGAGEMENT
EXTPIC	EXTRACTING IMAGES FROM THE VIDEOTAPE
INTERP	INTERPRETATIVE NOTES
MENT	COACHING/MENTORING
OPR	LEVELS OF SENSE OF OPPRESSION

PICT	TAKING PICTURES
REC	RECORDING LINES
RHS	SCENES/STORY REHEARSAL/IMPROV
SHY	LEVELS OF PARTICIPANT SHYNESS
SOLCONF	GIVING SOLUTIONS TO CONFLICTS
STOR	TELLING PERSONAL STORIES
SYNC	SYNCHRONIZING IMAGES AND LINES
SUP	BEING SUPPORTIVE OF EACH OTHER
TEAS	TEASING EACH OTHER
TECPR	TECHNICAL PROBLEMS
VID	PARTICIPANTS VIDEOTAPING
WATCHVFT	WATCHING VFT PLAYS
WRT	LEVELS OF WRITING SKILLS

Table 8.2: Substantive Codes

The descriptive codes in Table 8.2 were selected from all of the codes I created, because they were particularly relevant to the research questions. I annotated my field notes with the substantive codes from Table 8.2. I read my session's notes and the transcription of the tapes and marked individual sentences or whole paragraphs with the codes to which they refer. In this way I could cluster data and combine relevant information more easily.

The substantive codes are a way to describe, label, and retrieve the data. Before I created the list of codes, I studied the notes a few times and was able to find some patterns in it that matched my memory of occurrences; I also had the experience of the previous studies to help me predict which behaviors might occur. I created a conceptual map (Figure 8.1) from the patterns that emerged:

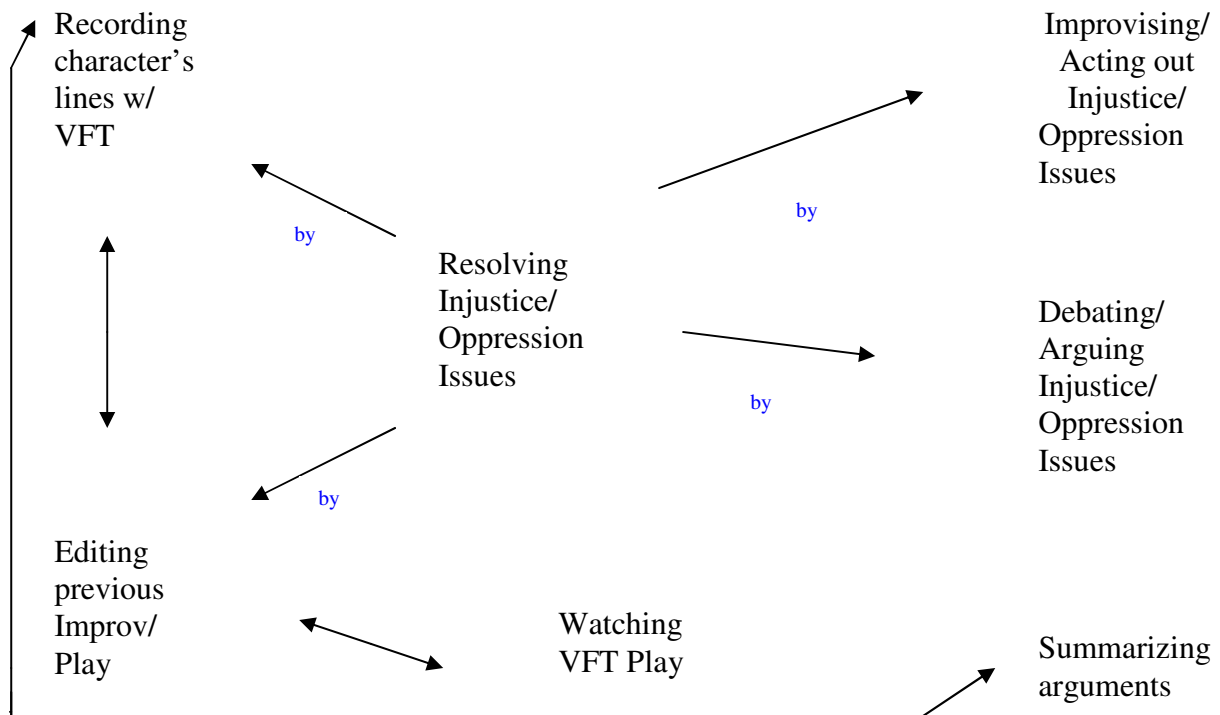


Figure 8.1: Interrelation of Pattern Codes

From this conceptual map (Figure 8.1), I organized the records of activities in relation to the design features of *VFT* in order to relate them to the actual learning and ways in which that learning related to stated learning objectives. Each *VFT* design feature corresponds to an activity of the study; I observed that these activities helped the participants to learn several skills related to argumentation style and expressive fluency. After that, I located in the tapes all verbal data that would provide evidence for each one of the points below, validating my observations:

Design feature of VFT	Helps children	Fosters the improvement of
Creating a digital play	Learn how to record character lines and add images to a digital play	Argumentation skill and expressive fluency
Recording lines	Project emotion and proper intonation; organize and summarize ideas	Argumentation skill
Synchronizing images with	Create artistic images and	Expressive fluency

sound	learn concepts of timing and animation	
Creating digital intervention frames	Organize conflicts artistically	Expressive fluency and conflict resolution skill
Downloading the digital play from a web server to watch and propose new solutions to conflicts	Reflect upon and discuss specific conflicts learning through engaged discussions.	Conflict resolution skill
Downloading the digital play from a web server to watch and propose new solutions to conflicts	Create convincing arguments	Argumentation skill
Downloading the digital play from a web server to edit it	Create a new version of the digital play	Expressive fluency and conflict resolution skill
Linking saved versions of virtual plays with the solution the children give to the issues	Follow their own line of thinking and develop problem solving strategies	Argumentation skill and conflict resolution.
Manipulating digital pictures and drawings	Think and be creative	Expressive fluency
Giving emotion to digital images of faces	Be creative in depicting emotions via facial expressions	Expressive fluency

Table 8.3: VFT toolset's Design Features versus VFT's Learning Goals

Experiment Activity	Helps children	Fosters the improvement of
Discussing Issues: activity promoted by the researcher during intervention	Practicing ways to argue about or for one's own ideas	Argumentation skills
Video Taping the sessions: not planned and stimulated by researcher during sessions	Playing around with their TV fluency, practicing interview skills, and being silly	Expressive fluency
Improvising Scenes	Practicing ways to argue about ideas in character	Argumentation skill and expressive fluency
Facilitating learning: role of researcher	To focus and delve deeper on the issues exposed to them	Argumentation skill and conflict resolution.

Table 8.4: VFT's Process versus Learning Goals

I was able to locate “verbal” data to verify some of my hypotheses. The dialogues between the participants and myself were transcribed into tape transcripts which were easier to search after coding the whole document. I already had a good idea of the patterns for which I was looking, because of the observations done during the second study in August 2006. Even though this final experiment yielded almost fifty pages of transcripts after transcribing tapes and dialogues, the research questions and the already identified patterns helped to focus and analyze the qualitative data by filtering out less relevant conversations and focusing upon data related to the research questions

I gathered all quantitative data from the surveys for the three groups and tabulated the qualitative answers, also looking for patterns in relevance to the learning objectives and research questions.

8.2.8 Validity and Reliability

Quantitative and qualitative data from surveys, interviews, and transcripts provided methodological triangulation. The participants own assessments, their teachers’ assessments, my observations, the interviews, interactions between themselves as well as between myself and them and their digital play gave different angles and points of view (data triangulation) that matched in several instances and opposed in others, providing a stronger level of data objectivity than self-assessments can provide (Maxwell, 2005).

The analysis of this last study was also informed by Maxwell (2005), especially helping me to plan for credibility and trustworthiness of data. I followed his guidelines on how to identify bias (researcher or participant subjectivity) and accuracy of data.

A known threat to data accuracy is the possible bias in self-reporting of the participants regarding the interface, such as ease/difficulty of use, as well as the importance of *VFT* to them, since the interviews were done by myself and all of them chose to put their names on the questionnaires.

One way that I attempted to triangulate the self-assessment was by my own observation on how they interacted with the tool. In most of the cases, it seems they gave honest answers, because they pointed out to me what they did not like and where they had difficulty with *VFT*.

Three studies were carried out with a common design, and the results of the previous studies are similar, which lends some credence to their conclusions. I used methodological triangulation, engaging multiple methods, such as observation, interviews, and recordings. I also employed theoretical triangulation as well, analyzing the data through the lenses of constructivism (Papert, 1980), Pedagogy of the Oppressed (Freire, 1972), Theater of the Oppressed (Boal, 1974), Drama in Education (Heathcote, 1984) and Argumentation Theory (McBurney, Hitchcock & Parsons, 2007).

8.3 Virtual Plays and Activities Afforded by *VFT*

In the following, I will discuss the data regarding each group's activities and digital play, as well as the interactions that took place during creation of each group's virtual play. I will start with the group from Rotary State High School, followed by Kabum, Arts and Technology School and State School Aplicação.

8.3.1 Rotary's Dramatic Production

Their digital play pictured the discrimination that goes on in the public schools of Salvador. The participants claimed that there is discrimination and animosity between groups of students. The students tend to label each other by behaviors and choices made when they group themselves with peers who share common interests. An artificial separation occurs between the group of girls who like shopping, beauty and frivolities, and the ones who are more conscious of social and political issues, or the ones who are more science oriented; also between boys who behave as if they are rich and the ones who adopt a simpler lifestyle or are of a darker shade of color, etc. Of course not everybody discriminates, but they live this dynamic in all aspects of the school, even in the student union.

They created a play with two scenes; one in the classroom where they portray disrespect towards the teacher; the other in the student union room during a meeting. There was a lot of teasing, disrespect and even physical violence going on in the play. Their play was not well elaborated, but I did not push them towards perfection. The goal was to portray a conflict that could generate debate. The issue was real and they generated real situations and dialogs; it generated important discussion between the other two groups who strived to find solutions. It demonstrated that they were aware of the kinds of relationships going on around them. It also demonstrated that they were acquainted with the issues, but did not know the best ways to solve them.

8.3.2 Rotary's Activities and Use of *VFT*

The way I worked with the Rotary group was the way I planned to work with all groups. We started each session with a dramatic exercise, which in theater terms is called a “warm-up exercise” and usually deals with group integration; coordination of voice, body movement, and facial expressions; creative story-telling, etc. This group did not engage very well with the warm-up exercises. They would do them in a superficial way, participating in the games without intensity, and lots of laughing at inappropriate times. The only warm-ups with which they engaged well were the pretend-play ones: where they had to enact a story after deciding (among themselves) which story they would perform for the whole group.

I discuss the activities by sessions in chronological order; the sessions that are omitted did not present any relevant or outstanding data or story. The first session was introductory and they got an idea of what the project was going to be.

At the second session we talked about issues of oppression and injustice. They enacted some personal stories related to injustice issues and brainstormed about the play they would like to create, using these stories as a starting point. They decided to create a play dealing with injustice in their school. It would take place in a classroom containing students from all walks of life that is usually divided into groups who might alienate one another.



Figure 8.2: Acting out stories of injustice

They started improvising the scene in the third session and I interviewed each of them regarding their characters. They were asked to describe their characters “in-character”. They improvised the same scene again for two more sessions and each time they would introduce some new situation.

By the 5th session, they decided to record the lines and settled upon a summary version of their rehearsals. The process of recording the character’s line in *VFT* is equivalent to a final improvisation. They decided what to record by discussing (arguing) with each other and with me which would be the best line. By best, I mean the most efficient and succinct way they could find in which to deliver their messages.

Each line has to be less than 60 seconds long, which is already long in the context of computer capabilities. In practical terms of theater, it is very rare to have one character’s

line longer than one minute, other than in a monologue¹⁵. Therefore I emphasized the importance of shorter lines that get to the point quickly.

The emphasis on shorter lines generated several debates between the participants and myself on how to say a certain point precisely and convincingly; it turned out later that these debates had a major importance in improvement of their argumentation skills. It helped them to practice concentration, find the right emotion and intonation, organize and summarize their ideas. Below is Excerpt 8.1 at the 9th session where they started recording the second scene of their play, a meeting between the students association called “gremio”:

Recording lines	9 th session
<i>Adroaldo</i> : ...so, I called this meeting for you to give me your opinion about what to do and come to a consensus. So what do you propose?	
<i>Researcher</i> : Let's go. Did everybody blank? <i>There was a long pause and they need to interrupt one another without breaks.</i>	
<i>Tadeu</i> : This is.	
<i>Ludi</i> : Cut!	
<i>Researcher</i> : No, he has to say something. <i>Ludi cuts Tadeu off too soon.</i>	
<i>Tadeu</i> : We can make a project in the area of education...	
<i>Ludi (interrupting)</i> : We could make a fashion show...	
<i>Adroaldo (interrupting)</i> : No, I think it is better; you have to say [it] like that.	
<i>Lillian gets up and repeats what Adroaldo just said.</i>	
<i>Researcher</i> : Again, let's start once more...do you want to see the video once more?	
<i>Irene</i> : It is not necessary; let's go, Adroaldo.	
<i>Researcher</i> : Don't cut off the other on the 1st word, but when he says for example “an education project”, let the person gives a bit of the idea before cutting him or her off, ok?	
<i>Adroaldo</i> : Good morning, people!!!	
<i>Everybody</i> : Good morning!	
<i>Adroaldo</i> : I called this meeting here, because the school principal together with the school are asking us for something new; something to break the routine; then I called you all here so that together we can reach a consensus of what to do; so I want your opinion; what do you suggest?	
<i>Tadeu</i> : We could do a project about education.	
<i>Ludi</i> : I think we should do a fashion show.	

¹⁵ Boal commented during workshop in New York in 1999 that monologue was a form of oppression and one needs to engage in dialog to end oppression.

Lillian: Not a fashion show, not a fashion show; I think we should do something about racism, about discrimination, that would be much better.

Irene: No! I think it would be better to approach the educational area influencing the children to continue in school (*brief pause*); then you say (*to Ludi*), no a fashion show.

Ludi: No a fashion show.

Pause...

Irene: go everybody!!!!

They all talk at the same time, increasing the level of noise and making it impossible to transcribe, but this was part of the conflict of the scene.

Adroaldo: Hey, silence!!!! I think it is better, I think not, I am sure that it is better to make a contest including everything you want....then let's make only one (*someone interrupts him*) ... shut up...we will make one project approaching everything: the fashion show, influencing children, what?, against discrimination, the educational project; then we make a contest with all this projects on it; Is everything ok?

Everybody: Ok!

...continues in Appendix 4.

Excerpt 8.1: Rotary's 9th session – recording character's line

In this excerpt, the group tries to make sense of what happens in a meeting of the school Gremio about putting together a school-wide project. They know there are divergences between the desires of different factions of Gremio students, and are trying to portray disrespectful and discriminatory relationships that exist within the school. This deliberation dialogue contains the stages of “inform”, “propose”, “recommend” and “confirm.”

Except for the warm-ups and improvisations, Adroaldo had expressed himself only five times until this 9th session. It was the first time he expressed himself in a noticeable way and with such assertion (at least eight times during this activity alone). Not even during the improvisation of this same scene was he as communicative as above (see Appendix 2). His character was the leading one in this scene; therefore he had a strong motivation to act. This confirms his teacher's observation that he needs an external motivation to participate.

They interacted really well while recording their character's lines. They helped each other find the best way to express the idea; they gave feedback on voice intonation and volume. Adroaldo had fun making the voice of the well-behaved female student who was not present at that session. They were very supportive of each other, even though they often teased each other (this teasing was not rude, but seemed to be part of the fun of being together).

For the classroom scene, the participants recorded lines before they took pictures. They took the pictures for the classroom scene at their 6th session when they also took pictures of the second scene called "Gremio". The process of choosing the pictures to add to the animation of each sequence was also a participatory one. They would look at the pictures together and decide which ones to use. They were usually all together manipulating the images or – at least – three of them at a time, but the student whose character was the one delivering the line was the one leading the given sequence and actually using the mouse to control picture position in time.

Most of the youth in this group tried to use three pictures per second, but after visualizing the animation, they decided to use only one or two images per second. They said that otherwise the animation would change too fast and they did not like it.

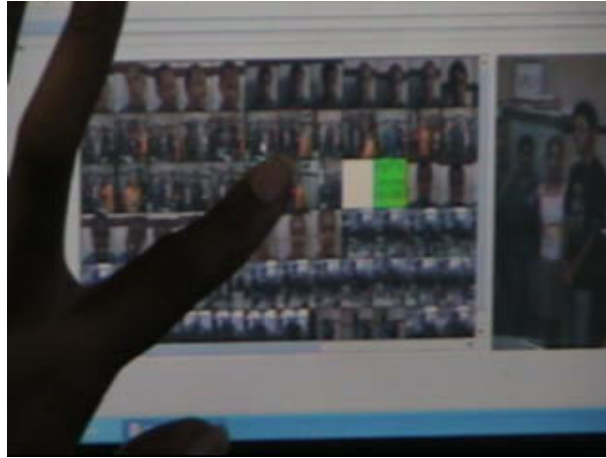


Figure 8.3: Choosing images for the Gremio scene

This activity of synchronizing images with the character lines provided by *VFT*, seemed to help them to create artistic images and learn concepts of animation fostering their expressive fluency. Below is Excerpt 8.2 during the 11th session:

Synchronizing images with sound	11 th session
<i>They discuss the amount of images they already have in the sequence. Evaluating if they need to trash some in order to add a few others of Adroaldo. They ask for my advice.</i>	
<i>Lillian:</i> We need to get the part from Adroaldo, but there are a bunch already. Are you sure we need more photos, Alice? This one, from the first scene?	
<i>Rebeca:</i> We repeat, right?	
<i>Lillian:</i> Yes, we have to repeat!	
<i>Adroaldo:</i> I think if we should leave like that; fewer photos would be better.	
<i>Lillian:</i> No, because the line is short!!!! Then too many photos, it will miss photos.	
<i>Adroaldo:</i> I don't think it is cool when there are too many photos, because it says, "good morning" and the sequence of photos goes through; I think it would be better if there were fewer photos....	
<i>Lillian interrupts:</i> I think, here....these photos in the scene here for example...	
<i>Adroaldo interrupts:</i> I would use two photos and it would be good.	
<i>Lillian interrupts:</i> Well, only two photos? No, Adroaldo!	
<i>Adroaldo:</i> Why not?	
<i>Lillian:</i> If it needs to be done as if one were moving...	
<i>Adroaldo:</i> Look at here, look at this again, and put it there again	
<i>Rebeca:</i> Place it there?	
<i>Lillian:</i> Here, here!	
<i>Adroaldo:</i> Place it there again?	
<i>Lillian:</i> Here?	
<i>Adroaldo:</i> Yes, place it there.	
<i>Adroaldo:</i> Yeah, this line is big.	
<i>Lillian:</i> But Adroaldo, understand, we are supposed to do like that thing; I forgot the name, the one like a notebook that you pass the pages on the corner and the things start to move, you know!	
<i>She refers to manual animation done with the pages of a drawing book.</i>	

Adroaldo: I know how it is!

Lillian: Then? I think this amount of images is good for the presentation.

Adroaldo gives up the argument and goes back to the video camera he had in hand.

They finally go back to the tool and see what Rebeca is doing. Adroaldo interrupts her:

Adroaldo: Rebeca is putting too many photos. I think this is not necessary.

Lillian: I also think that it is not.

Rebeca: And what do you want me to do?

Excerpt 8.2: Rotary's 11th session – synchronizing images and sound

In this excerpt, they discuss the ideal amount of images to associate with a given speech recording time. While they disagree with the number of images needed for a given recording, each expresses a point of view and the group tries to come up with a common decision and a path for action (deliberation dialogue).

Rebeca started to show more signs of participation and expression. In the 11th session alone, she expressed her opinion ten times compared to just four times that she had expressed herself from the beginning of the study until then. This excludes warm-ups and improvisations, which were counted separately from activities involving *VFT*, such as creating the digital play and discussing about the digital play's issues.

Adroaldo continued to increase his level of participation and expressiveness. During the 11th session he voiced his opinion seventeen times; ten times while creating the animation (excerpt 8.2) and seven times while debating the issues presented by their play (Excerpt 8.3); therefore the act of creating a technological object (*VFT* play) that is owned by the children and generates reflection and discussions facilitate the improvement of expressive fluency.

This 11th session was one of the most productive and we had time to engage in several activities, such as creation of digital intervention frames, discussion of issues presented by the play, and synchronizing images with character lines. The intervention frames call the attention of the virtual “spect-actor” to the issues portrayed by the plays; it flags the moment where an interruption is desired in order to reflect about the conflict and propose a solution.

This group created three intervention frames for the classroom scene using Word Paint. They were very creative, used pre-existing shapes and painted some designs. We had a brief discussion of how many intervention frames they needed and which would the frames be about. After that they used the laboratory computers to create the frames in groups of two. During this process, they discussed among each other the best way to go about it.

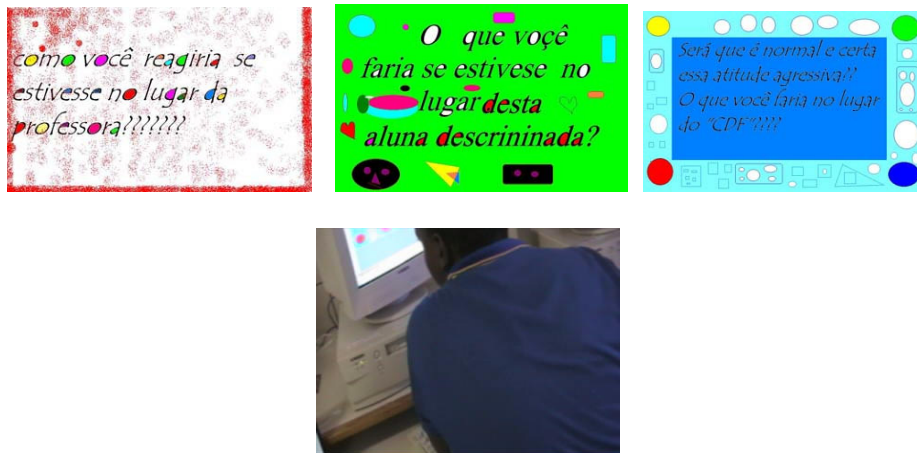


Figure 8.4: Rotary’s intervention frames for Classroom scene

Lillian also exhibited her maximum participation and expressiveness during this session, always arguing her points and expressing her opinions. I consider Lillian and Irene the

most outgoing participants of this group and I did not observe any change in their expression and argumentation skills throughout the study. Neither they nor their art teacher considered them shy or as having difficulty expressing themselves; quite the opposite. During this session Lillian was the one who talked the most, which was quite usual during the whole study, especially during the two weeks that Irene was not with us.



Figure 8.5: Recording characters' lines

This group took fewer pictures than needed to fill the sequences. They overcame this issue by extracting pictures from the videotape of their enactment, or taking additional pictures of the scene. This was a bit of a problem for this group, because the video recording of their enactment was dark, and by the time they needed more pictures they were missing three participants; and they did not want to have the play without them. They took pictures of the character (who delivered the line at a given sequence) gesticulating in order to complete the sequences while replacing missing pictures.

All the youth who participated in the different interactions of this study wanted to have the image of their faces or gesticulating bodies as part of the animation. We used that desire to introduce some creativity to the pieces, such as taking pictures of two characters

when they were interacting together in the scene. That meant they had to go back to the scene and take new pictures.

One of the possible uses of the Dramatic Faces interface was to eventually distort the participants' faces if anonymity was an issue. However, in all the studies it was found that the children desired to have their own images out on the web. During research there was not concern about publishing the students' images on the Internet. The server could only be accessed by the client version of VFT, and the schools in Brazil did not object to having the student's pictures on a password-protected web server.

By their 11th session, Rotary's group finished their play, so I decided to introduce a discussion on the issues Rotary's youth were portraying on their own play, so that they would be better prepared to debate with Aplicação's youth. By this point, I learned that Rotary's youth enjoyed sitting together to debate, so I followed their best learning style, the social one. Excerpts 8.3 of this first round of discussion at the 11th session regarding their own scenes demonstrate their thinking and level of argumentation skills about their own thematic:

Discussing Issues	11 th session
<p><i>Researcher:</i> What would you do if you were the teacher disrespected by the student? <i>Initially Lillian takes a pacific role and defers action to the authority.</i> <i>Lillian:</i> According to my personal way of being, I don't fight, I would let the student do what he wanted and I would call the school principal to use her own authority. <i>I challenged Lillian to think about what would happen if someone in authority was the oppressor</i> <i>Researcher:</i> If the teacher pulled your ear, what would you do as a student? <i>Lillian:</i> Ah, I don't know...no...This is the kind of situation that only when it happens...I think I would hit her face...ah, seriously speaking, I would push her and would tell her: "who are you to pull my ear? Not even my mother does that any more, let alone a teacher." <i>Lillian takes a confrontational approach with the teacher who pulls her ear, but Adroaldo considers it unthinkable as a possibility.</i> <i>Adroaldo:</i> I would discuss with the teacher, because she could not yell at me or be rude to me. Not</p>	

even my mother or sister is rude to me. If the teacher pulls my ear, I would pull hers back. This is wrong. In my real life, this problem never happened; perhaps, the teacher, principal of school and me should seat down and debate the issue. I never lived such situation.

Researcher: What would you do, if you were the very good student who was threatened?

Lillian: As any person, nobody would accept that situation for too long; the student would end up yelling and opening his mouth for someone in the school administration so that the parents would speak with the students involved (bully and bullied)

Adroaldo did not answer this question.

Researcher: If you were the female student who was being marginalized?

Lillian: What would I do? I would do nothing; in some moments, I would respond back, at other times, I would be myself (mind my own business), say nothing and let her speak... I would do what I had to do and would not mind her.

So far, Lillian is continuing to be passive about the conflict. But then Adroaldo becomes assertive.

Adroaldo: Not me...I would respond with insolence/rudeness such as, "at noon time, I go to have lunch at my own house, so let my life for myself."

Lillian: Of course, it is like I said; nobody has cockroach's blood to keep bringing rudeness home the whole time for nothing.

But then there are second thoughts, as Adroaldo considers the effects of his aggressiveness.

Adroaldo: But I think if you talk to her with rudeness, she would never more tell you anything.

Lillian: Speaking like that, it seems as if you were brave.

Adroaldo: I speak, but I don't start a fight, I am coward.

I then challenged Lillian's passive approach:

Researcher: You would ignore for most of the time, but would it help if you talk to someone?

Lillian: I would talk with the principal; the discrimination could even stop for at least two months, but after that it would come back again. I say that for me. If I am teasing someone and this person asks me to stop, I would stop for sometime, but later I would start it all over.

It seems that Lillian does not believe that anything can stop the bullying, but they certainly reflected upon the consequences of both passive and aggressive attitudes towards conflict resolution.

Excerpt 8.3: Rotary's 11th session – group discussion

In this excerpt, participants discuss their own play, trying to tease out all the possible solutions and their consequences. I challenge their initial responses by amplifying the oppression, in the hope they can analyze the situation further. Some participants "give up" on a peaceful solution; it is not part of their experience. This sample shows "inform" and "recommend" argumentation.

8.3.3 Kabum' s Dramatic Production

This group focused on problems they found in their neighborhoods such as excessive levels of noise, junk, and garbage. Even without being totally aware of larger social issues, as it is typical of eleven-year-olds, they were conscious of the main social issues

in the place where they lived. They also knew that alcohol and violence were problems, but those were more difficult for them issues to deal with than neighborhood issues such as noise and garbage.

Their play had two scenes portraying two sets of different neighbors. The first one presented a single woman who would come from work and turn on her stereo so loud that the family next door could not watch TV, concentrate on computer work, or work on school homework. The family tried to ask their neighbor to turn down the volume, but she did not seem to care and slammed the door in their faces.

The second scene is about a couple of children and their uncle who are disorganized and keep throwing their household trash into a neighbor's yard; on top of that, they constantly ask the same neighbor for food. The children portrayed the scene but gave no solution for the issue; a verbal fight at the end where all involved are yelling and blaming each other indicated their inability to resolve the conflict.

Considering the simple dialogs they created, the play seemed to match their level of development, which is lacking in realism. One sign of this is that they put a computer with Internet connection into a poor household, which is not a common scenario, considering the high price of telephone, broad-band connection, and desktop computers in Brazil. These children did not know about the federal program that finances purchase of home computers for poor families, and they simply ignored the fact that the family could not afford a computer, energy, or internet connection (Script # 6 in Appendix 2).

8.3.4 Kabum's Activities and Use of VFT

The activities planned to this group were the same, but the pace and the kind of warm-up exercises varied a bit, because they were younger. Our first two sessions were introductory; they also answered the pre-activity and *Myself and Technology* surveys. In the third session, I asked Kabum's participants to give examples of oppression and their examples were of depression which suggested that these children were not yet aware of oppression issues; therefore I concentrated instead on issues of injustice, which they did seem to understand. We brainstormed for part of a session and they decided to create a play called "The Injustice of Lack of Respect" which dealt with the lack of respect between neighbors who would throw trash on each other's property and constantly play loud music.

They engaged better in the warm-ups than the Rotary's teens, probably because the participants were still at an age of pretend play without personal censorship. They went through a series of four improvisations before they recorded the character's line on VFT. They took pictures of the scene during the second rehearsal. They started recording by the sixth session and at that same session, they started to improvise their second scene. They did not finish recording the first scene until the 9th session, but they kept going with the second scene at the same time, i.e., rehearsing and taking pictures of it. By the tenth session they started to record the lines for the second scene, and a fourth girl joined the group.

Excerpt 8.4 shows a few interactions they had while recording a character's line, making decisions, and sometimes arguing with each other about the best way to deliver a given line:

Recording lines	9th session
<i>Marcelo started to practice his line that would come next.</i> <i>Marcelo:</i> Then I talk like that: Fabiana, are the prices really good to buy construction material for the building? <i>Researcher:</i> These prices... <i>Marcelo:</i> Are good...are good to buy construction material for the building? <i>Researcher:</i> It can't be messy...you need to talk clearly. Say that again, please. <i>Marcelo:</i> Fabiana, are these prices really good to buy construction material for the building?	
Recording lines	10th session
<i>The fine tuning of the scene dialog happened during recording; they discussed among each other being responsible for the process of finding precise, short and to the point messages.</i> <i>Researcher:</i> Which is the next line? <i>Lucia:</i> Does he ask her? <i>Researcher:</i> No, this way it would be too long. Didn't you say something about food? <i>Noelia:</i> I am dying of hunger... <i>Lucia:</i> Ouch, I am hungry.... <i>Marcelo:</i> Wait there; I am going to fetch cookies with juice for us; it's better like this: One moment, I am going to fetch cookies with juice for us... <i>Lucia:</i> No, I'm going to see if there are some cookies in the cabinet... <i>Marcelo:</i> I'm going to see if there are still cookies in the cabinet.... <i>Researcher:</i> I want to hear again. Say it, Noelia? <i>Noelia:</i> Hello my Uncle! I am starving! <i>Marcelo:</i> One moment, I'm going to see if there are still cookies in the pantry... <i>Lucia:</i> Have you ever seen a pantry in the houses of poor people? <i>That was an important remark. It shows how much awareness she has of their social situation and demonstrates the increase on the elaboration of her arguments. They tried once more.</i>	

Excerpt 8.4: Kabum's 9th & 10th sessions: recording character's lines

In these excerpts, participants collaborate among themselves, giving ideas on how to best deliver their character's lines. The exchanges demonstrate how attentive they are to the dialogue and the meaning of every single word (for more details, see italic remarks embedded in the transcript).

At the beginning, Marcelo dominated the group; he always gave ideas or was the first to solve issues until Noelia joined them. After that, Marcelo did not dominate the discussion any more. Quite the opposite: sometimes he only answered if I asked him directly.



Figure 8.6: Choosing images to animate the Trash Scene

They were slow choosing pictures and part of it was because they would not click once in the image to see it larger (on the side) and would try to judge which picture to use from the thumbnail images. They also had no practice with a laptop and manipulated the touchpad mouse and keyboard very slowly.

This group was the one that most used the computer, because of the time they needed to create the digital play, because they enjoyed using the computer, and because this group had more sessions than the others. We spent fifteen to twenty minutes with warm-ups and the rest on the computer, unless they needed to improvise and enact their play. As a rule, if they had to record their characters' lines, they would enact the play before recording it, so they would have the interactions fresh in their mind and remember the right emotion that they would need to have in their voices.

As they were finishing to create the first scene (noisy neighbor), I asked them to plan and create the intervention frame for this scene. Two of them went to the computer room in order to use Word Paint and create the frame. They created a sort of structured intervention instead of a colorful and free hand drawing one. They came up with a sort of quiz asking which one of the solutions the “virtual spect-actor” would give to the problem (Picture 6). During the process almost every child in the group went one by one to the computer room to pick at the frame and give suggestions.

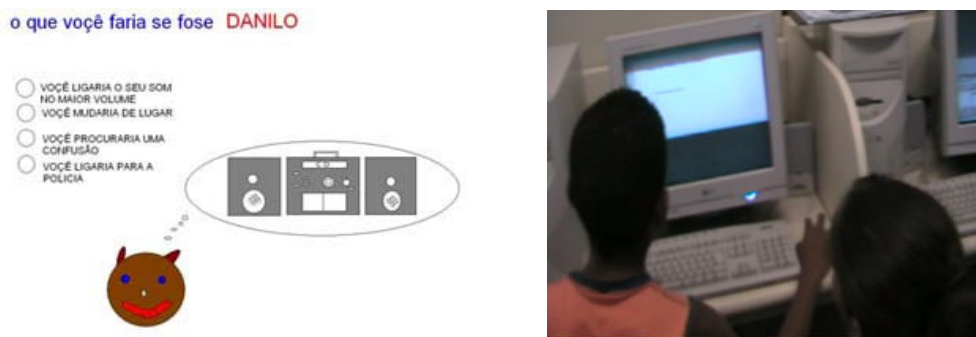


Figure 8.7: Kabum’s children creating the Intervention Frame

By the 11th session, they were recording the lines of the trash scene (2nd scene) and it was an issue to have all engaged in the same activity with only one computer. Most of the times, I had four of them in front of the computer, but usually two or three at a time. The last girl who joined the group, Fatima, had a difficult time concentrating and would distract the others and get in trouble with Danilo. When she joined the group, there was not a place for her in the scenes, but the children created one; they made her to be a visiting friend of the woman who had her house littered by the neighbor. They took some extra pictures and she came up with a line for her character.

They used to argue among themselves during activities in order to decide the best way to deliver a line, the best sequence of images to use for a given line, and some teasing that would occur here and there. They were able to practice ways of resolving small issues and making decisions during all the activities planned. Excerpt 8.5 shows their interactions while animating scenes, i.e., choosing and dragging pictures into the sound window:

Synchronizing images with sound	10th session
<p><i>Marcelo: Do you see it? It is only me? It starts here, right? Do I place this one here? He looks at researcher.</i></p> <p><i>Noelia: No.</i></p> <p><i>Danilo: You're leaving it here, look? It needs to be more this way. He refers to the place where the image is located at the photo gallery in the screen.</i></p> <p><i>Researcher: Is there none where you are all seated?</i></p> <p><i>Marcelo: No.</i></p> <p><i>Noelia tries to lead the others, but at the same time, her active participation moves Lucia towards active participation as well:</i></p> <p><i>Noelia: There it is! Come more this way! (Referring to a direction in the image gallery.)</i></p> <p><i>Lucia: Only if it is here, look?</i></p> <p><i>Noelia: More this way...</i></p> <p><i>Lucia: There, look?</i></p> <p><i>They seem to have difficulty in looking at the images, because they are little icons. For some reason, they did not get used to clicking once on an image to enlarge it.</i></p> <p><i>Marcelo: There is a photo missing!</i></p> <p><i>Danilo: There is a photo missing!</i></p> <p><i>Marcelo: Oh no! That is the one! That is the one!</i></p> <p><i>Noelia: But, there is one where we are seated!</i></p>	
Synchronizing images with sound	11th session
<p><i>Tania is manipulating VFT and the others helping her to find the appropriate images.</i></p> <p><i>Noelia: Look here?</i></p> <p><i>Tania: Here?</i></p> <p><i>Noelia: Yes, that one, and the one we are coming to also. Referring to the pictures where Noelia was coming into her uncle house.</i></p> <p><i>Lucia: Did you already place us?</i></p> <p><i>Noelia: Did you place?</i></p> <p><i>Lucia: Yes, look there!</i></p> <p><i>Noelia: Yes, she already placed it.</i></p> <p><i>Lucia: Throw it in the trash!</i></p> <p><i>Tania: Now, arriving at the table... here it is, this one, this is the one. Referring to the image of Noelia and Lucia coming to the dining table.</i></p> <p><i>Noelia: Also this one of us coming in, look? Um-hum, this one where we are walking, and this one before the table, there!</i></p> <p><i>The interactions continue....</i></p> <p><i>Tania: No this one does not belong...</i></p>	

<p><i>Lucia expresses herself more and even takes stands contrary to her peers.</i> <i>Lucia:</i> That one also belongs. <i>Referring to another picture from the gallery.</i> <i>Tania:</i> There is one of him by the cabinet. This one of him returning, look? <i>Noelia:</i> Yep, put this one! <i>Later during this activity:</i> <i>Tania:</i> Which one my girl, there is none of Marcelo here! <i>Losing her patience.</i> <i>Noelia:</i> Here! Click it there to see!!! <i>Tania:</i> There he is, throwing trash... here he is, throwing trash.... <i>Lucia:</i> No, place that other one, go more that way... <i>Tania:</i> Which? <i>Lucia:</i> This one.</p>	
Synchronizing images with sound	13th session
<p><i>The children were alone in the room during this interaction.</i> <i>Danilo:</i> There are too many photos, Marcelo! <i>Marcelo:</i> But, the thing is that there are several.. <i>Noelia (interrupting Marcelo):</i> Don't we have to put a photo from Lucia, Marcelo? <i>Notice how assertive Lucia sounds:</i> <i>Lucia:</i> You need to take all these photos from there, got it? <i>Marcelo:</i> Here, we already added this one. <i>Lucia:</i> It is to take these two photos from there, ok? <i>Noelia:</i> It is to take all these photos from there. <i>Referring to the images that were in the sequence they were working on.</i> <i>Marcelo:</i> wait, wait. <i>Danilo:</i> Don't do that, no, wait, quick. <i>He grabbed the mouse of the laptop and did the drag and drop himself.</i> <i>Noelia:</i> Do not put this photo from Lucia, this one is to add when she comes talking to Marcelo. <i>Lucia:</i> Is it now? <i>Danilo:</i> ...The line does not start from here, the line starts here <i>(he pointed to the sound wave depiction in the screen).</i> <i>I never saw Danilo so assertive; I wonder if that happened because I was not present.</i></p>	

Excerpt 8.5: Kabum's 10th, 11th & 13th sessions - synchronizing images and sound

In these excerpts, we see a growing understanding of the nature of time as it relates to sound and images. Participants help each other with difficult concepts, and argue about what is best for a scene. As the discussion developed, less intervention from me was necessary because the participants started to develop a critical awareness of the consequences of their choices, as seen in the last excerpt.

I started to see a difference in Lucia's expressive ability around the time of the 10th session. She was voicing her ideas more often without being asked by me. She showed more self-confidence by trying to convince her peers about her ideas, which I had not

seen until session 11. By this point she also knew how to use *VFT* well and was always eager to create animations.

At roughly the same time, Tania started to present longer arguments and express herself a bit more. Danilo liked to help the others to manipulate the computer and took the lead on this role when possible; he also started to show signs of being more confident with the group and with me; by the 10th session he even made a joke to me (he was usually very quiet and obedient). As seen in Excerpt 8.5 above, he took a leadership position on session 13 and argued about what was right and wrong in the animation; that was the first time that he took a stand with the group; it might be important to note that I was not in the room when that happened.



Figure 8.8: Discussing the synchronization of images with sound

8.3.5 Aplicação's Dramatic Production

The Aplicação group created the most elaborate play among the three groups, which reflects their stronger knowledge about theater, expression abilities, maturity and social consciousness level compared to the Rotary group. They took care of props and showed

concern for the props and set that should resemble a boutique in a shopping mall. They portrayed social, economic, and color discrimination issues.

Their major struggle was how badly the students from public schools are treated in the stores that cater to upper class people; the students were recognized by their school uniforms. Most of them would bring a skirt from home if they wished to go to the shopping mall after school. They also considered discrimination towards anyone of color that enters a store dressing in a simple way. They claimed that the salesperson does not give any attention and most of the time tries to send that customer out of the store as soon as possible (see it in Appendix 2).



Figure 8.9: Enacting the discrimination at the mall

They included gender discrimination as well, which is a hot personal and identity formation topic from this age group. This issue sparked a genuine and involving debate among the Rotary group, who really needed to debate about identity formation. There were perhaps two boys in the group leaning towards homosexuality and seemed a bit lost on the issue. That discussion, in my point of view, seemed to be the most powerful

moment of learning for the Rotary group, and reinforces the concept that having a meaningful object to reflect upon fosters learning.

The younger group (Kabum) discussed the issue of color and economic class discrimination with fervor, even though the situation in the shopping mall was not commonplace to them, as they do not go to those places yet.

8.3.5 Aplicação's Activities and Use of *VFT*

The activities carried out with this group were somewhat different from those of the other groups. There was less time and space for warm-ups, even though they performed the warm-up exercises with engagement and excitement. There was no need to work on group integration with them, because they were already a cohesive group; I worked instead with them on creative story telling and characterization.

The experience with this group was totally different from that with the other two. I was not able to work as planned. The participants came into the activity with their own agenda and I had to follow it. Some of the students could not meet in the morning because they had to work, so we had to meet at the end of their afternoon classes. They could never start before 5:30 pm and most of the time, we did not start until almost 6pm. That time constraint meant we had one hour to work per session instead of two. But, on the other hand they were able to enact a situation really quickly and were more effective during improvisations than the other two groups.



Figure 8.10: Improvising and recording lines in response to Rotary’s play

I did not observe any shyness between the participants, nor any of them claimed to be shy in the pre-survey (low=1/high=2 & 1 is “not timid”). This group worked as a sounding board for Rotary’s group. The plan was for them to debate about each other’s work and meet online. They also were helpful in giving me feedback about the tool.

Recording lines	8th session
<i>Customer4: I want to know the price of the sneakers.</i> <i>Saleswoman: I already told you, there is no price, don’t you see that the way you dress shows that you are in no condition to buy it?</i> <i>Customer4: How come am I not in condition?</i> <i>Researcher (to Fatima): How could you say it differently so that you don’t repeat the same thing you said before?</i> <i>They start again and practice for a couple times until the final line is reached.</i>	

Excerpt 8.6: Aplicação’s 8th session – recording character’s line

In this excerpt, they practice the dialogue before recording, trying to eliminate repetitions (this is the fourth customer on this scene), and deciding how to better present the message while making the lines clear and short. The discussions during line recording were between all the students involved at the time, including the ones who had to record their character’s line and myself. I coached them and gave ideas on how to be more succinct. Most of the time they would take my suggestions, but at times they would propose a different option (Excerpt 8.6).

This group improvised quickly and during the 7th session they recorded the lines and had already taken pictures and made a video clip of their improvisation. They did not spend much time with *VFT*; I video taped their scenes improvisations and extracted the pictures from the video. They recorded character lines and added images making the animation. They created their own play “Going to the Mall” and a response scene for the “Classroom Scene” from Rotary’s group.

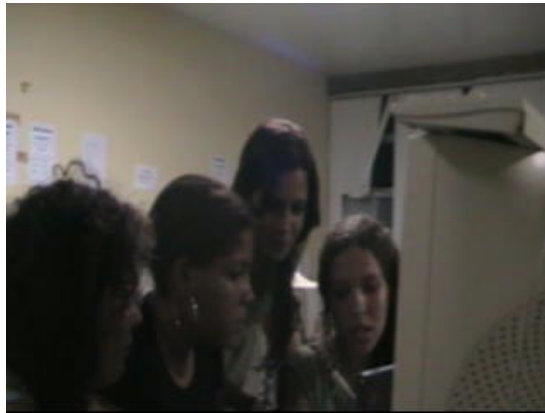


Figure 8.11: Recording character’s lines of their digital play (Going to the Mall)

This group decided to create three intervention frames for the Going to the Mall play, but for some reason, they did not manage to put together the last one. They also did the frames in group of two or three discussing as they made the frames. The lack of the third and last intervention frame made a difference on how the other groups interacted with this virtual play. The fact that virtual “spect-actors” attention was not drawn to the issue of discrimination against the last customer (absent intervention frame) made the virtual “spect-actors” ignores the issue.



Figure 8.12: Going to the Mall intervention frames

This group was always involved in “doing,” they would prefer to be “in character” and enacting rather than discussing things from the perspective of their own personas; therefore verbal data collected for them were mainly from improvising scenes and practicing dialogue while recording. For this same reason, it was difficult to evaluate possible improvement in argumentation skill.

8.3.6 Cross-group Interactions

At Rotary’s 13th session, they watched the play from Aplicação called “Going to the Mall”. Adroaldo was absent. The activity was to discuss the issues portrayed by the play and enact a response to it. The discussion was so rich that it continued through two sessions. It was very productive and gave another chance to Rotary’s group to have “an object to argue about”, sharpening their argumentation skills. For this group the enactment and creation of another digital play reinforced what they had learned before about *VFT* and dramatic skills.

During this discussion Rebeca was very engaged; she spoke eight times and gave long arguments. It was the first time that I saw her actively expressing her opinions (Excerpt 8.7).

Discussing Issues	13 th session
<p><i>Adroaldo missed this discussion. This is the 1st time Rebeca engages with so much enthusiasm. The topic of gay/lesbian issues was a hit with the group.</i></p> <p><i>Researcher:</i> What would you do if you were a customer flirted with by the homosexual manager? What would be your reaction?</p> <p><i>Rebeca:</i> I'm going to be honest...</p> <p><i>Tadeu:</i> No, I would tell him that I don't like him to touch me.</p> <p><i>Rebeca:</i> I would say the fruit you like, I don't like; I would talk to her and tell her that I like men; do you understand, right?</p> <p><i>Lillian:</i> I would simply say: "Excuse me, talk, but don't touch!" Everybody would feel uncomfortable with all that touching, so I would ask her to stop touching me. I would not leave the store, but would say "Could you please stop touching me? I am feeling uncomfortable. Independent of her being lesbian or a man."</p> <p><i>Researcher:</i> What would you do if you were the student of a public school being discriminated against at a shopping center store?</p> <p><i>Rebeca had never spoken so much at once. She previously gave short answers to inquiries.</i></p> <p><i>Rebeca:</i> Sometimes, teacher, I think the discrimination is not from the salesperson, but from the store manager, because sometimes the manager talks and instructs the sales force, "if someone who is not well dressed shows up, say something and that is all, do you want to see, take a look, but don't touch anything"</p> <p><i>Researcher:</i> Do you think this is correct?</p> <p><i>Rebeca:</i> I don't, teacher; I don't think this is correct.</p> <p><i>Researcher:</i> What do you think the treatment should be?</p> <p><i>Rebeca:</i> The treatment should be the same to all; treat well, ask what one wants/desires, and ask what one wants to buy; to give very good service.</p> <p><i>Lillian once more expresses her first pacific reaction of dealing with conflicts.</i></p> <p><i>Researcher:</i> Lillian, what would you do?</p> <p><i>Lillian:</i> What would I do? When I am in a place where I don't feel comfortable, I simply go away; and I would say something "naughty" such as "even my father has more education than some people"(she laughs – her father is a poor and uneducated man). If I am being treated badly, I get out of the store and if someone asks me about that store, I tell them not to go there; I give really bad impressions of the place because they have horrible service.</p> <p><i>Tadeu:</i> You call the manager and complain.</p> <p><i>Rebeca:</i> But the thing (<i>problem</i>) is not really the saleswoman, but the manager.</p> <p><i>Researcher:</i> Then, if you have to redo this scene, the solution is to call the manager and complain, right?</p> <p><i>All:</i> yes</p>	

Excerpt 8.7: Rotary's 13th session – group discussion

In this excerpt, the participants take the role of a customer "flirted with" by a salesperson and discuss ways to respond and deal with this kind of discrimination. This is an example of "rehearsal for change." The last speech of Rebeca in the discussion above gives an example of what she witnessed at a "CIA" (a French department store chain) between a customer and a salesperson related to the theme, but portraying the opposite situation,

i.e., the customer did not treat the sales people well. It was a long argument and it was her eighth time expressing her opinions.

When they were recording the lines for their response scene, we discussed the issues once more (14th session). I inquired again what would they do if they were a customer with which the homosexual manager flirted; Adroaldo gave a long speech to say that he would make clear that he respects the sexual choice of the manager, but does not like to be flirted with by the same sex (1st answer below). Lillian and Rebeca also gave long speeches. None of them sounded prejudiced. Excerpt 8.8 below demonstrates the changes seen in the students' way of arguing and presenting their ideas; both Adroaldo and Rebeca were able to give longer and more elaborated arguments than ever before:

Discussing Issues	14 th session
<i>Researcher:</i> What would you do if you were a customer flirted with by the homosexual manager?	
<i>Adroaldo seemed to express himself better when in character. Most of his long speeches where always acting out a role:</i>	
<i>Adroaldo:</i> You are touching me too much; I am uncomfortable! I know you are part of this movement, but I don't like it; so the same way that I respect your position, you should respect mine. It is in giving that one receives. If you want to be respected, you must respect; you can't come on like that, touching me all over, and request something from me; I can't respect you, if you don't respect me; you are invading my privacy and making me feel uncomfortable.	
<i>Researcher:</i> Who is able to say all of that in a summarized way?	
<i>Lillian:</i> Look, I know that you; (<i>short pause</i>) no. Could you stop? You are making me uncomfortable, got it? I am in a situation where I don't want to hurt you, but I also don't want to be in this situation with you touching me.... That is it!!	
<i>Rebeca:</i> I would basically say...I would understand her side, but I was not part of it; I am not lesbian, I like men, but I respect her choice.	
<i>Tadeu:</i> Man... I would ask him to stop, because I was not who he was thinking I was... I don't know....I would talk to him, saying that this is not how he should act and so, I am not gay... and I would come to a conclusion with him so that he would not feel offended, nor me.	

Excerpt 8.8: Rotary's 14th session – group discussion

In this excerpt, we see a definite improvement in Adoraldo's expressiveness. I did not direct the question directly to Adroaldo. I asked the question to all of them, but he was the first one to speak, he also interrupted a couple of times with his opinions. It was a

good improvement on his part. I asked again (Excerpt 8.9): could you show the salesperson more respect for his choice without ignoring him completely?

Discussing Issues	14 th session
<i>Rebeca:</i> Teacher, I think... it is a reason to say nothing...simply excuse oneself and leave. <i>Lillian:</i> I would not leave...I would buy the dress. <i>Researcher:</i> Exactly, you want the dress, but you don't want to be touched or flirted with. <i>Rebeca:</i> I would be quiet, I would say, "I want that dress", and that is all. <i>Lillian first reaction is always passive and peaceful:</i> <i>Lillian:</i> I would not feel well, I would act cold with the manager, and get away from her touches, but I would not leave the store if I wanted the dress; she would finally note that I was not comfortable.	

Excerpt 8.9: Rotary's 14th session – group discussion

Initially they thought one should not say anything to her, one should buy a dress if one likes it and if not, leave the store. But, they understood that if they did not say anything, they could not portray their position against this prejudice. Lillian's and Rebeca's solution was to have two young women in the store talking about the sexual choice of the saleswoman and discussing this issue without having to approach the saleswoman directly, because they think it would be a difficult situation to approach the saleswoman directly. I suggested bringing their solution to Aplicação's students through Internet chat (Excerpt 8.10):

Enacting a Solution	14 th session
<i>Rebeca:</i> Look, that lady is touching me too much... <i>Friend:</i> Then, she must be lesbian. Let's get out of here. <i>Rebeca:</i> This is silly, we will buy it; I have nothing to do with that; leave her there, if she starts touching me too much, I call this to her attention. If she does not stop touching me, I call it to her attention again.	

Excerpt 8.10: Rotary's 14th session – enacting a solution

Thus the discussion proceeded from understanding, to critical thinking, to recommending a path for action, as a good deliberation dialogue (McBurney, 2007). By this point the development that was going on for Adroaldo and Rebeca was noticeable. They were able to formulate their thoughts better than before. Adroaldo had the longest arguments until

this point. Adroaldo did so by incorporating the customer character of the “Going to the Mall”. Rebecca’s self-expression was on and off, sometimes she would talk “in character” and other times not. Notice the first interview with Adroaldo at our third session where he describes his persona (Excerpt 3.2 in Appendix 4), he talked very little, even though he portrayed his character with much realism. Until the 10th session, he would only express his opinion if I asked him directly, even though he started then to initiate plays among the group and he was definitely more comfortable and starting to open up.

The group from Kabum had a simpler play that reflects their age and developmental outlook, but I wanted to give them a chance to discuss their performance with someone; therefore I asked the Rotary’s group to get online with them. Before that, Rotary’s group saw Kabum’s play called “The Injustice of Lack of Respect” and they discussed it with me. The plot was simpler, but the issues were important enough to be debated. The eleven-year-olds were distressed by immediate social problems and wanted to call attention to them.

Since those are common problems between the groups, the debate was heated and engaging; it was another opportunity for them to put their ideas together and argue about them. The mediated discussions about social conflicts were also an important part of the educational intervention, especially because these issues are lived by them and need to be sorted out and reflected upon in order to better resolve them or better argue with neighbors about them.

The discussion mentioned above happened during the 15th session. Adroaldo expressed himself fourteen times without being directly asked and with some long arguments. I inquired about the noisy neighbors and the ones with garbage on their property. Excerpt 8.11 has some of the most elaborate solutions he gave:

Discussing Issues	15 th session
<p><i>Researcher:</i> If you were going to chat online with these kids, what would you suggest to them? <i>They did not get into character, mainly because these issues are so much part of their daily life and they had so many examples to share, but Adroaldo and Rebeca did talk in the first person as if they were living through the situation.</i></p> <p><i>Adroaldo:</i> I would say, look , you give more enthusiasm next time, ok? Because you say it like this (<i>in character</i>): “I turn down the volume when I want, the ones who don’t like it, go away”. <i>He talks in a flat monotone.</i></p> <p><i>Lillian:</i> I never saw anyone say something in this way, did you?</p> <p><i>Adroaldo:</i> I think she needs to add more enthusiasm (<i>he delivered this line with real enthusiasm in his voice</i>);”I turn down the volume when I want, the ones who don’t like it, go away.”</p> <p><i>Lillian:</i> The ones who live in the Coquete understand it very well (<i>teasing Adroaldo, who lives there</i>).</p> <p><i>Adroaldo:</i> Understand... (<i>they are all laughing</i>)...A neighbor who makes tons of noise ...(<i>he prepares the background to his enactment</i>)...<i>He starts knocking on the table as if he was knocking on a door and said as if he was the character:</i> good night, Mrs., come here, don’t you have consciousness? Don’t you know that someone also wants to watch TV, one needs to concentrate; you keep this stereo on for the whole day; I would not mind on the weekends, I don’t know, in the mornings, but the whole day? I can’t stand it anymore; either you will give a solution to it, or I can open a claim (<i>he refers to the Law of Silence</i>¹⁶), you know? Do you know that after 10pm during the week, we can’t have the stereo loud anymore? Aren’t you aware of this, Mrs.?</p> <p>(<i>Back to his own being</i>): Argh, I would knock at her door and make her conscious of it. I could call the police after her, after 10pm, you know?... <i>the conversation continued, and later ...</i></p> <p><i>Researcher:</i> Would you have another suggestion to solve this problem? <i>Asking about the trash issue:</i></p> <p><i>Lillian:</i> If talking does not resolve it?</p> <p><i>Adroaldo:</i> I would call her and would talk to her.</p> <p><i>Lillian:</i> Talk does not resolve it. These people are ignorant.</p> <p><i>Adroaldo still believes in the power of conversation and interrupts in character:</i> You come to my house, ask for food, and besides asking for food, you still throw trash here, my lady? Thank you very much; do you see? Because we help, but that is what we receive back in the face! So, this is like that, thank you. I would call her to talk.</p>	

Excerpt 8.11: Rotary’s 15th session – group discussion

¹⁶ New law in Brasil that prohibit loud music after 10 pm.

In this excerpt, participants discuss several options to the problem of people throwing trash on each other properties (houses are separated from each other by a thin corridor) and evaluate each one. The option of confronting the person comes up and looks desirable, but there is still some concern that people will not respond to direct confrontation.

Adroaldo is now heated up; he had emotion in his enactment. The discussion was really meaningful to them, despite the fact that the play had been created by eleven-year-olds. Adroaldo kept expressing his way of resolving the issues even towards the end of the debate (Excerpt 8.12).

Once this group started watching the digital play created by the other two groups, they became extremely engaged and the discussions were lively and evocative to them. I observed how much they voiced their opinions and tried to convince the others of the effectiveness of their solutions to the issues raised by the plays. The verbal data on excerpt 8.11 and 8.12 shows a shift in their argumentation and expression abilities as well.

Adroaldo: I would get in like that, if talking would not solve it, I would get in like this and call his/her attention, and say “so man what’s up? You come here and you don’t have anything to eat, I give you cookies, I give you juice and you instead make my property dirty? What is that?” then if that would not resolve it, I would not talk with the neighbor anymore and would not give anything. And if he/she continued to throw trash on my space; *he claps and says*: “what is this? Let’s stop it!” Then I could really close myself off [from the neighbor].

Researcher: Is there no other solution?

Tadeu: Not for me.

Lillian: Problematic?

Researcher: What about mobilizing the neighborhood and have other people talk together [about this]?

Lillian: Yes, but look, understand that not everybody...

Adroaldo: No, the neighbors don’t have anything to do with it.

Lillian: No, it is not everybody who will say: “This is not with me, so why do I have to get involved with this story, if I have nothing to do with it? Get it?”

Adroaldo helps Lillian on what she was saying and lets escape: “and there is nothing to do”

Lillian: It is that story in someone else’s eye (*she laughed*); it is like fruit punch! Something like that.

We have an expression in Brazil that says: “hot pepper in someone else’s ass is like fruit punch!”; she was probably shy to say that as it is. On the other hand if someone wants to make the expression polite, one uses eye instead of ass.

Adroaldo: If two problems like that were happening, or one problem like that among two neighbors and one would call me, I would say: “look, this does not concern me, so you resolve your ‘cucumber’ (*which in this case means “problem” in Portuguese*).”

Lillian: And why get involved in other peoples’ problems, right?

Researcher: Then, this is the path, right?

Excerpt 8.12: Rotary’s 15th session – group discussion

In this excerpt, participants are in the process of finishing the discussion about the family who throws trash in their neighbor yard and coming up with a common sense solution which they find really difficult to solve. They do not agree with my suggestion at all.

Excerpt 8.12 relates to the research question of how enacting meaningful and realistic social issues does generate an “object to think with,” allowing the exchange of ideas and discussion about these thematic problems. This exchange occurred not only during the time spent on creating a play with social issues directly related to the participants’ lives, but also during the time spent on creating a response from a play created by another group that also presented social issues; thus generating an “object to enact with”. In this study, the populations were similar to each other, which perhaps contributed to resonance of the theme. The level of engagement and quality of deliberation dialogues in excerpts

#7 through #12, compared to #3, give evidence that discussing and editing a meaningful digital play created an “object to reflect upon,” which promoted enhancement of argumentation skills.





The collaborative learning and exchange of different points of view between the groups was only possible after downloading their play from the server (in our case, my laptop functioned as the server). The collaborative learning happened not only through local discussion among the group that downloaded the play (or watched at my laptop), but also through online chat sessions between the two groups (Excerpt 8.13).












I was not able to study the fourth research question (see section 8.1) because two of the groups did not share their thoughts through online chat. The two groups that did collaborate online had a very short online experience that did not allow time for many exchanges of points of view. But, if I defer to the literature on collaborative learning through online chats (Koschmann, 1994; Bruckman, 1999; Bers, 2007) there is some evidence of success in this area. In the case of this research, the collaborative learning happened in the sense that each group had access to the play of the other, which allowed exchange of point of views and deliberative discourse over a specific issue. The groups that did not meet online did meet face-to-face, and had some discussion about the plays.













I did not ask Rotary’s group to create a response to “The Injustice of Lack of Respect” because there was not much remaining time, they were all ready for summer vacation, and the same was true of Kabum’s group. The on-line chat between the two groups was







not very successful because there was a need for a technology mentor on both sides of the conversation and I could be on only one side at a time.

The children needed my help to get started on the web chat client LingR, and the Rotary group could only gain access to their school's computer laboratory through my presence. The schools are at least thirty minutes apart. The younger group had to wait for almost fifty minutes before the Rotary youth connected. At the same time there were only two teenagers from Rotary available for the online chat, and the Kabum children were very slow typists. Excerpt 17.1 in Appendix 4 contains the whole 50 minutes of chat activity, while excerpt 8.13 below displays the most relevant part of it (translated from the original Portuguese).

-  Adriano
- the resolution of your play could have been given through the law of silence
- at 10:55am (December 05)
- do you know?
- at 10:55am (December 05)
- ????
- *Not relevant to the piece. My son joined with a weird name*
 - At 10:55am (December 05)
 - *Evil Hacker Jerk* has joined the conversation
- at 10:56am (December 05)
-  LUCIA
- no
- at 10:56am (December 05)
- *Extracted my son's contribution*
-  Noelia/Tania
- Marcelo can't manage to start the program
- at 10:57am (December 05)
- ... *Extracted my son's contribution*
-  Adriano
- this law says that after 10pm one can not have the stereo speakers loud any more
- at 10:58am (December 05)
- ... *Extracted the dialog with my son*

-  Alice
- But what do you when the neighbor has the loud speaker before 10 pm?
- at 10:59am (December 05)
-  Noelia/Tania
- we have to resolve it on our own.
- at 10:59am (December 05)
-  Adriano
- call the police
- at 10:59am (December 05)
- it is the law
- at 10:59am (December 05)
- if it is law, let's fight for our rights
- at 10:59am (December 05)
-  LUCIA
- i need to take a decision
- at 11:02am (December 05)
- *Alice* has left the conversation
- at 11:04am (December 05)
- ... *Extracted interactions between my son, myself and Lucia*
-  Adriano
- does somebody want to talk about the plays ??????????
- at 11:04am (December 05)
-  LUCIA
- I knew it were you
- at 11:05am (December 05) *Referring to my son who was in the chat.*
-  Noelia/Tania
- adriano let's talk?
- at 11:06am (December 05)
-  Adriano
- hi
- at 11:06am (December 05)
- what role did you have on your play?
- at 11:06am (December 05)
-  Noelia/Tania
- we loved your play, who was your character?
- at 11:07am (December 05)
-  Adriano
- I was the "sacizeiro", the rebel student that argues with the teacher
- at 11:08am (December 05)
- *LUCIA* has left the conversation
- at 11:08am (December 05)
-  Adriano
- i also made that annoying voice of the girl who was a good student.

- at 11:08am (December 05)
-  Noelia/Tania
- the snobby girl/Tania was the teacher
- at 11:08am (December 05)
-  Adriano
- ah yes
- at 11:09am (December 05)
-  Noelia/Tania
- you were “farofa”
- at 11:09am (December 05)
-  Adriano
- are you talking on your play?
- at 11:09am (December 05)
- yes
- at 11:09am (December 05)
-  Noelia/Tania
- it was cool and funny
- at 11:09am (December 05)
-  Adriano
- I was “farofa”
- at 11:10am (December 05)
-  Adriano
- did you like it???
- at 11:10am (December 05)
- and what character did you do?
- at 11:10am (December 05)
-  Noelia/Tania
- it was d+
- at 11:10am (December 05)
- loved
- at 11:11am (December 05)
-  Adriano
- thanks
- at 11:11am (December 05)
-  Noelia/Tania
- I am waiting an answer
- at 11:12am (December 05)
-  Adriano
- your play was also funny
- at 11:13am (December 05)
-  Noelia/Tania
- I do the snobby student/Tania is the teacher

- at 11:14am (December 05)
-  Adriano
- I know
- at 11:14am (December 05)
- *Lucia* has joined the conversation
- at 11:14am (December 05)
- *Irene* has joined the conversation
- at 11:14am (December 05)
-  Adriano
- the girl who made the teacher is here
- at 11:15am (December 05)
-  Noelia/Tania
- irene how are you?
- at 11:15am (December 05)
-  Irene
- try to talk to her
- at 11:15am (December 05)
-  Noelia/Tania
-]
- at 11:15am (December 05)
- ok
- at 11:16am (December 05)
- don't understand
- at 11:16am (December 05)
- irene
- at 11:17am (December 05)
- are you there?
- at 11:18am (December 05)
- *Adriano* has left the conversation
- at 11:18am (December 05)
-  Irene
- when I said to talk to her is giving opinion about your play
- at 11:18am (December 05)
- I was the teacher
- at 11:18am (December 05)
- only me, farofa and alice
- at 11:18am (December 05)

Excerpt 8.13: On-line chatting

In excerpt 8.13, Adroaldo suggested one solution for the noise problem and outside of that, they talked about their characters. I wondered if – without mediation – the discussion was not productive, but it could also be because the Rotary's students were

impatient with the slow response of Kabum's children and they did not interact for more than fifty minutes; therefore generating very little material regarding the issues presented by the play. I also made a couple of unnecessary interventions that drew the attention of Kabum's children away from the play, such as when I asked about Marcelo and Danilo. My 11-year-old son was with me at Kabum that day and when I dropped him at home on my way to Rotary, he had learned how to log into the chat, so he also distracted the participants (I omitted his contribution to this chat). Therefore, considering all these distractions, I cannot affirm that mediation was necessary.

A week later I tried to connect Rotary with Aplicação. Again I could not be at both schools at the same time. At Aplicação there was no one who could be at the computer lab with the group. The teachers were all busy grading students and they had no monitors (students who are paid by the school to help out in some areas of school business). I asked the school principal at Rotary to allow the group to use the computer lab with a monitor and she agreed with me. We scheduled a date and time. Rotary school would be closed at the time; they were running a couple of good-bye parties since it was beginning of vacation. That afternoon, all the monitors would be there for their party with the school staff.

Nothing happened as planned. Only one student from Rotary's group showed up and the school did not let her in. At Aplicação, there were five students present, but there was no power at the computer lab and when we finally got power, the Internet connection was down. It got too late and everybody had to leave. I also had no way other than chat to

communicate with the students from Rotary. I called the school, but I could get no information about the students.

The second attempt was to host one group at my house and the other at an Internet Café next to my house, but the students wanted to see each other in person, so they all came to my house, they met each other and discussed the work they did. The leader from Aplicação's theater troupe (Luca) played a theater game with them; they asked me to participate in this game. They talked a good amount about theater and the plays they had done. The time that they discussed ideas about the plays they had made – in terms of giving feedback to each other – was short, but it generated deep discussions about prejudice, oppression, the situation with public schools in Brazil, youth anger, and the role of theater in helping people to reflect about social issues, practice a way of change, and use theater as a constructive criticism.

It turned out that Adroaldo was a revelation. Luca proposed a theater game where you pass the ball for someone in the circle and the person who receives the ball needs to incorporate a character and pass the ball to the next person when finished with the improvisation. In one moment of this game, Adroaldo tried to leave the circle and he seemed shy, but I asked him to return and he stayed on it, enacting a great part. It was surprising to see him enacting so well in front of the new group. He had spoken only a few times during the discussion that afternoon.

Rebeca and Irene also did a good job enacting their parts during the game. Lillian always had a hard time concentrating and getting into character, it seems as she has a very strong

self-censorship and blocks herself, because she is not shy. Unfortunately Tadeu did not come and I could not observe him in the larger group.

The discussions and responses generated by Kabum children were also very productive and intense. They watched Rotary's play during the 15th session. They had a great discussion about the play, and by far a more engaging one than the one about their own play (we discussed it during the 14th session); they were very engaged in answering my questions and discussing the issues of lack of respect between students and teacher. They enacted their response after a discussion about all the issues presented by the Rotary's group.

These children paid a lot of attention to Rotary's play and it was very interesting to notice their reactions. Some of them (especially the boys) thought it was funny that the bully student wants to hit the good student in order to make him write the essay. They also thought it was funny to hear a voice that was not really from a girl. They seemed to understand the scene well, and wanted to enact it in their own way, suggesting speeches and actions that would be different. Excerpt 8.14 gives evidence of their engagement during the discussion and more elaborated arguments from Danilo and Lucia:

Downloading the digital play from a web server to watch and propose new solutions to conflicts **15th session**

Noelia: It has been stopping? *Talking about the computer animation – VFT.*

Researcher: What is written there [*referring to the intervention frame*]?

Tania: It was too quick!

Researcher: Give it another “play”, click on the arrow.

Researcher: What did you understand from the play?

Tania: That the student was a rebel; he did not respect the teacher; when he spoke he said that he would not do the essay, neither today nor tomorrow.

Researcher: And which is the relationship between the students?

Notice how assertive Lucia is in this discussion.

Lucia: [Adversity], because one wanted to hit the other and did not want to do his homework.

Researcher: What would you do if you were in the place of the student being discriminated against?

Marcelo: I would ignore it, because I am proud of my black skin color.

Lucia: I am proud of my skin color...

Researcher: Ok, but what would you do if the others were teasing you too much?

Lucia: I would call the principal, if she did not solve the issue, my mother would.

Researcher: How would your mother solve it?

Lucia: Opening a claim (*going to the appropriate neighbor court and filing a claim against discrimination*) and talking with all the students.

Researcher: What about you Tania? What would you do?

Tania: I would talk to the principal, if the principal did not solve it; I would in my own way.

Researcher: Which would be your own way?

Tania: I would look out for my own rights.

Researcher: How would you look for your own rights?

Tania: I would go to the police office and open a claim of racial discrimination.

Researcher: What about you, Danilo?

Danilo: I would go to the principal...

Researcher (interrupting Danilo): Speak louder, Danilo!

Danilo: I would go to the principal and say that he [the other student] wanted to discriminate against myself.

Researcher: What if there were several students discriminating against you and teasing you all the time?

Danilo: I would wait until the year's end and would move to another school.

...Noelia (speaking in the 1st person in character): I would say that we think the same way, study in the same place and we are not different from each other, if you find me different from you, that is your problem.

Researcher: What would you do if you were the teacher being treated disrespectfully by the student?

It is important to observe how all of them would resort to authority, which matches with Piaget's theory on cognitive development and is very appropriate of this age group.

Danilo: I would be somewhat rude and would bring the student to the principal.

Noelia: I would say, "I am not crazy; you don't learn because you don't pay attention. The crazy one here must be you."

Fabiana: I would bring the student to the principal; I would request suspension and call the parents.

Marcelo: I would ignore the attitude of the student and act as nothing had happened.

Tania: I would bring the student to the principal and would give him suspension.

I was impressed with this assertive reaction considering how shy and quiet Lucia was acting until then:

Lucia: I would tell the student to respect her, because she could be his mother. I would leave the school and would look for another school [*in which*] to teach.

Researcher: What would you do if you were the student being beaten?

Danilo: I would tell him that I would do the essay, but as soon as he turned his back, I would go straight to the school principal to complain.

Excerpt 8.14: Kabum's 15th session – downloading VFT play

In this excerpt, the children take a stand on how to deal with discrimination and disrespect. They are all very assertive, especially the shyest ones such as Lucia and Danilo. This discussion occurred before they enacted the solution to all the issues suggested by the play.

During the 15th, 16th and 17th session they improvised, took pictures, and recorded the lines of their response play to Rotary; during the 17th session they also saw the store scene from Aplicação. They enjoyed Aplicação's play and we had a productive discussion, but they did not want to enact and create a response play partly because they were finishing the school year, ready for vacation and partly because given the kind of discussion we had, they seemed a bit detached from the theme of going out to buy in shopping centers. Those were all eleven-years-old and probably do not go to the shopping mall with their parents or grandparents, who are poor. The teenagers are the ones who might go to shopping centers, even without money. Below is an example of them editing Rotary's play and creating their version of it; one can see how the discussion stem from the activity and how they try to persuade each other in search of the right thing to say (Excerpt 8.15).

Downloading the digital play from the web server to edit it	16th session
<p><i>Lucia did not come to this session and missed this activity where she would be recording her character.</i></p> <p><i>Researcher:</i> Lucia would be the next. Tania, will you deliver Lucia's line?</p> <p><i>Tania:</i> I am proud of my black color, you are white on the outside and black inside, but we have to unite one's self....</p> <p><i>Researcher:</i> Unite ourselves...</p> <p><i>Tania:</i> Unite ourselves, because we are from the same school; we have to respect each other.</p> <p><i>Tania fixes the grammar errors with her own hand.</i></p> <p><i>Researcher:</i> Ready? Did you fix it? Then come here.</p> <p><i>Tania:</i> I am proud of my black color, you are white on the outside, and ... you are white on the outside and black inside; we have to unite one's self, because we are from the same school; we have to respect each other.</p>	

Researcher: Unite ourselves. (*I fix the preposition to her with my writing.*) Say it again, Tania?
Tania: I am proud of my black color, you are white on the outside, and ... you are white on the outside and black inside; we have to unite one's self... we have to unite ourselves, because we are from the same school; we have to respect each other.
Researcher: ...1,2,3 and go ...
Tania: I am proud of my black color, on...on...you are white on the outside and black inside; we have ... we have to unite ourselves, because we are from the same school; we have to respect each other.
...Tania repeated the line once again.
Noelia: It is super big!!!
We listened to it. Researcher: Let's go a bit faster. Can you manage it?
Noelia: you could say it like this: "you are white outside, but we are all the same inside."
Tania repeated and wrote it down.
Noelia: Instead of saying that you are white outside, but inside we are all the same, you could say like that, "I am proud of my black color, but we have to unite ourselves because inside we are all the same."
Researcher: I think this line is too long and we have few photos. Let's make it shorter?
All: um-hum.
...continues in Appendix 4

Excerpt 8.15: Kabum's 15th session – intervening on Rotary's VFT play

In this excerpt, Tania is replacing Lucia's character and recording in her place. Tania has trouble with grammar and delivers the line more slowly because of that. They decide to make the line shorter and when we agree on a line, Tania records it.

This young group would play games around the room (two or three at a time) while the other two or three were in front of the computer working on VFT. There were a few times when I had them all concentrated and engaged on the work with VFT, but that would not last more than forty minutes, when only the ones who needed to record the line or the two most interested in doing the animation would handle the laptop.

The evidence on how different the whole experience could have been with one child per computer is when the children engaged one-to-one in the computer. I asked them to chat with each other even though they were in the same room, and they did that nicely and quietly for almost one hour. On the other hand, they collaborated intensively when

sharing my laptop in groups of four or five, which would perhaps not have happened otherwise. They tried mIRC (Internet Relay Chat Client) and the web chat LingR.com (http://www.lingr.com/room/asGAt4WargR/get_password). They liked the web chat better, because it was a bit more graphical.

Marcelo was the only one who did not become engaged with the chat, he might not feel pleasure writing, but watching. He was “goggling” the “Globo” site to see soap operas, videos, and net games. I wanted them to learn how to use chat in order to connect to the Rotary’s group. I imagine how well would they had worked with *VFT* if I had two of them in one computer working on recording and creating the animation.

In the following session they connected with two of Rotary’s participants. The transcript of their chat (Excerpt 8.13) shows that they briefly talked about the issue presented by their play; the web chat experience for the Kabum children was empowering (they seemed extremely happy, excited and confident to be chatting with teenagers who had seen their play), even though they did not discuss anything important, despite of the responses that Rotary’s group could have given.

Kabum’s group created three short scenes responding to Rotary’s scene in the classroom while Aplicação’s group wanted to create a different plot to approach the conflicts. They are translated in Appendix 4 (Excerpt 1); there was some difficulty in translating youth slang.

8.4 The Result of the Work and its Impact

The outcome of the discussions about issues presented by the plays, their enactment and the creation of the digital plays seemed to have a positive impact on them. The outcomes were more relevant to Adroaldo, Tadeu and Rebeca. No perceptible changes for Lillian or Irene were found. At Kabum, the results were more relevant to Lucia, Tania and Danilo.

Below I discuss three case studies demonstrating the impact of the work for both Rotary and Kabum's group.

8.4.1 Adroaldo's Journey

As seen in the answer of the question below (Excerpt 8.16) and in the change in his shyness (up until 9th session) to assertive attitudes (session 11th on), Adroaldo became very conscious of the positive effects of our work together, which was also voiced by his teacher later in the year.

Participant Interview	11 th Session
<i>Researcher:</i> Do you think the fact that we are here discussing ways to solve conflicts can help you in real life? <i>Adroaldo:</i> It is very useful in life. It helps because we might have a problem and everything, then we think and we remember of this theater; how can I solve this problem in another way; not only in one way, but in several ways; think in different ways, look at all sides; yes, we can use it in our lives.	

Excerpt 8.16: Rotary's 11th session – participant interview

Adroaldo's art teacher, Simone, told me that at the last classroom presentation of the year, he presented very well which had never happened before. During our workshop, between the 1st and 4th sessions there is evidence of only one moment that Adroaldo expressed himself during circle time (discussion). During the 3rd session he spoke 5 short lines during the classroom scene improvisation and 3 during character building (Excerpt

3.2 in Appendix 4), totalizing 8 occurrences of speech. During the first interview at session 6, Adroaldo expressed himself 3 times (Excerpt 6.1 in Appendix 4) (and only after I asked him directly), and 6 times in two improvisations (Classroom and Gremio scenes - total of 9) (Excerpt 3.1 in Appendix 4). During the 9th session he expressed himself 8 times during recording lines, when he actually had the main character in the scene (Excerpt 8.1).

At 11th session there was a big shift in Adroaldo, he was assertive when creating intervention frames together with Tadeu (Excerpt 11.3 in Appendix 4). During an interview at this same session, he gave about ten answers, some very short and others of medium length (Excerpt 11.2 in Appendix 4). During an issue discussion at the 11th session (Excerpt 8.3), Adroaldo expressed opinions seven times, varying between short and medium arguments; and while synchronizing images with sound he expressed himself ten times with very short lines (Excerpt 8.2). During issue discussion in the 14th session, he expressed himself five times with long arguments (Excerpt 8.8) and fifteen times (Excerpt 14.1 in Appendix 4) during scene improvisation. During the 15th session, Adroaldo expressed himself 17 times without being directly asked and with some very long arguments (Excerpt 11, 12 and 15.1 in Appendix 4). He delivered 10 short lines on a brief discussion in session 16th maintaining the assertive behavior, but always going back to a situation he knew well (Excerpt 16.1 in Appendix 4).

The graph below represents the number of times Adroaldo spoke through the relevant activities of the study such as scenes improvisation, line recording, synchronizing images

with character's line, group discussion about issues portrayed by the plays and interviews. Most of the medium arguments he had were incorporated as long ones. The criterion was how elaborate and meaningful the argument was.

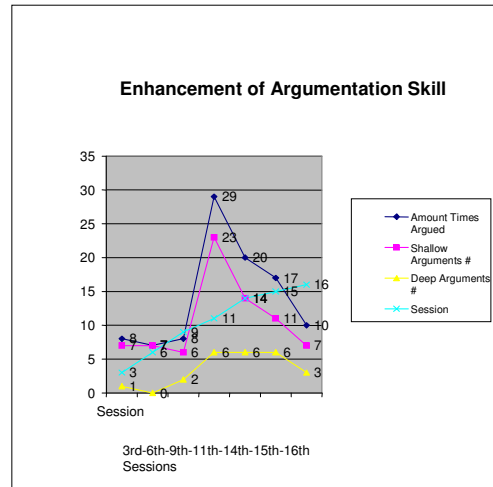


Figure 8.13: Adroaldo expression growth

Analyzing the deliberation dialogues (see section 2.9) that happened between myself and the participants, I found that up to the first ten sessions Adroaldo's arguments had the stages of inform, propose and sometimes revise or recommend. For example, during the 3rd session while introducing his character he answered my questions covering only "inform" and "propose" conditions; in this excerpt, Adroaldo was creating his character on the spot while I asked questions to help participants to put the life story of their characters together:

Researcher: Farofa (*the nickname of Adroaldo's character*), how old are you?

INFORM:

Adroaldo: What's up man? Man, I just turned 18th, so, get it brother? Look, like this, I just turned 18th, now I can go out to "Lual" (*gather where the youth play guitar by the full moon*), I don't like to go to school, but my mother forces me to, or else she does not give me the money that I use to buy my "bek" (*marijuana*); so like per day, I need 3 "reais" (*Brazilian currency, approximately US\$1.50*) to smoke when I get up, at noon and at night; I speak with the whole gang; I get along well with everybody; this way it is all cool.

Researcher: What are you going to do when you finish high-school?

PROPOSE:

Adroaldo: Man, I am thinking about opening a little juice place to earn some bit of money; only enough to buy some pieces of clothing to wear and to smoke.

Researcher: What do you do outside school?

Adroaldo: Outside school, I go out with my friends, go to "guitar playing and singing by the full moon at Abaete Lake in Itapuã" and smoke marijuana, I smoke a lot, I sure smoke.

Excerpt 8.17: Adroaldo's deliberation dialogue

During the improvisations and recording (6th through 9th session) of the "Gremio" scene

Adroaldo delivers both "inform" and "recommend" stages:

ADROALDO: I called this meeting here, because the school principal together with the school are asking us for something new; something to break the routine; then I called you all here so that together we can reach a consensus of what to do; so I want your opinion; what do you suggest?

.....

ADROALDO: Silence, silence! I think it is better; I don't just think; I am sure that it is better to make a context approaching everything you want. So, in the context there will be a fashion show, and an educational project influencing the kids not to leave school, a project about racism and so on. Do you all like it?

Excerpt 8.18: Deliberation dialogue

Excerpt 8.18 represents the beginning and end of the Gremio meeting where Adroaldo has the leading role. It was the first time that he tried to speak with certainty and assertiveness. Towards the 14th session his arguments became more complete, adding a "recommend" and sometimes a "confirm" stage. As for example the one speech below (14th session) contains inform, propose, consider, revise and recommend stages:

Adroaldo: You are touching me too much; I am uncomfortable! I know you are part of this movement, but I don't like it (*Inform*); so the same way I respect your position, you should respect mine (*Propose*). It is in giving that one receives (*Consider*). If you want to be

respected, you must respect (*Revise*); you can't come on like that, touching me all over and request something from me; I can't respect you, if you don't respect me (*Recommend*); you are invading my privacy and making me feel uncomfortable.

Excerpt 8.19: Adroaldo's complete deliberation dialogue

This represents a huge jump in expressive skills from the previous excerpts. This excerpt involves all four stages and interweaves them into a single argument.

According to the post-activity survey, Adroaldo answered that he relatively improved his ability to communicate (3) on a Likert scale of 1 to 5. He exemplified this assertion by saying that they went through several situations that they had to solve conflicts, working a lot with communication between themselves and dealing with future conflicts that might appear. He also believed that he relatively improved his ability to argue (3); he said that knowing how to use words, he could convince other people that he is correct.

Adroaldo wrote in the survey that it makes sense for shy students to work with *VFT*, because the digital play helps shy people and they do not have to expose themselves right away to several people. He also wrote that it is easier to create and enact a digital play compared to a play presented in a theater.

Adroaldo's self-assessment was backed up by my observation of him and by his art teacher's knowledge of him in classroom. His art teacher wrote in the pre-activity survey that Adroaldo is an observer, introspective, quiet, but not apathetic, and that he shows understanding of things, but he needs to be stimulated to participate in class. She considers him a shy person; he only expresses himself in classroom if he is motivated by

her or by his classmates; she gives him a score of 3 among 1 to 5 for expression and argumentation abilities when the low=3/high=5 among the five students for both abilities.

When asked if Adroaldo solves conflicts in classroom, she answered that he omits himself and does not like to express his opinions and gave him a 2 for this item when the low=2/high=5. She believes that he has an average consciousness of the social problems in his neighborhood and in the city (3) where the low=3/high=5.

In the post survey she said she saw improvement in Adroaldo's argumentation of ideas. She considered him to be a student who argues very well (5) where the low=3/high=5. She also noted that he was better solving conflicts that arose in the classroom (5) where low=3/high=5 as well as expressing himself much better (5) where the low=4/high=5.

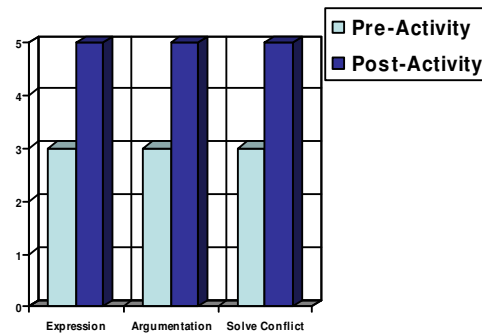


Figure 8.14: Adroaldo's abilities according to teacher survey

Adroaldo's answers to the *Myself and Technology* survey show an increase in Caring from $M=3$ to $M=4.4^{17}$, and Confidence towards computer usage and programming (from $M=2.25$ to $M=3.5$) while he maintained the same average for Contribution ($M=2.75$).

VFT is not a programming tool and we did not work with any kind of programming script

¹⁷ The Mean derived from *Myself and Technology* are relative to each C. A respondent presents an average for each one of the C's.

language, therefore the Competence domain does not directly apply to this study. Confidence has one statement related to feeling confident on how to use computer programs, which I don't think was the case for any of my participants, but since most of them presented an average score on the Likert scale; I believe they interpreted *VFT* as software tool. On the other hand, Adroaldo answered 1 at the beginning and 5 at the end of the study for the statement "I feel confident that I can figure out how to use new functions of a program on my own." His scores were the same for Character (M=3.13) and slightly decreased for Connection (M=4, 5 and M=4, 16) which made sense because *VFT* was not connected to the internet, and they only used the on-line chat for two sessions. There are evidences that this experiment helped him to express himself better, to learn how to better argue and to help him out of his shell.

8.4.2 Tadeu's Journey

Tadeu represents the case where *VFT* did not help on improvement of argumentation skills or expressive fluency. Tadeu did not present himself as a shy person and in fact during our first sessions, he was engaged and had an active role in dramatic improvisations, but he did not talk much. As we started shifting to computer-based activities, he was always eager to manipulate *VFT*. He also took an active role taping the video sessions and most of the times he would concentrate on that and not joke around with the others while taping. He demonstrated good expressive fluency during acting, and had good concentration skills related to drama games and improvisations; on the other hand he demonstrated very little competency on argumentation. There are perhaps two or three occurrences of a good argument during discussions, but none in his written survey responses. There is actually very little transcript data with which to analyze his skills,

because he would talk very little. He was outspoken in his jokes with the others from the group; Perhaps he got distracted by the Internet and did not engage well on our discussions, on the other hand, I observed that he was listening and paying good attention to the discussions, because of the way he would look at us during the discussion, and because he had quick, short and “to the point” answers when I would ask for his opinions in the course of dialogue.

Perhaps he chose not to voice his opinions, either because he agreed with what was being said or because he was not totally interested on it. The video tapes and transcript data from the discussions and interviews corroborate with my observations (track #9). Whatever the case was, Tadeu did not expressed himself more as the intervention progressed; neither his arguments got better. Perhaps, it was part of his personality not to talk much; Tadeu was certainly a good observer, as his art teacher also expressed.

In terms of level and amount of argumentation, the graph below and the verbal transcripts from the previous section demonstrate that he had no notable change in expression, with a relatively unchanged ability for deeper argumentation. He starts arguing for his ideas, but that declines and stays low until the end of the study. His participation was fine, even though he missed about three sessions.

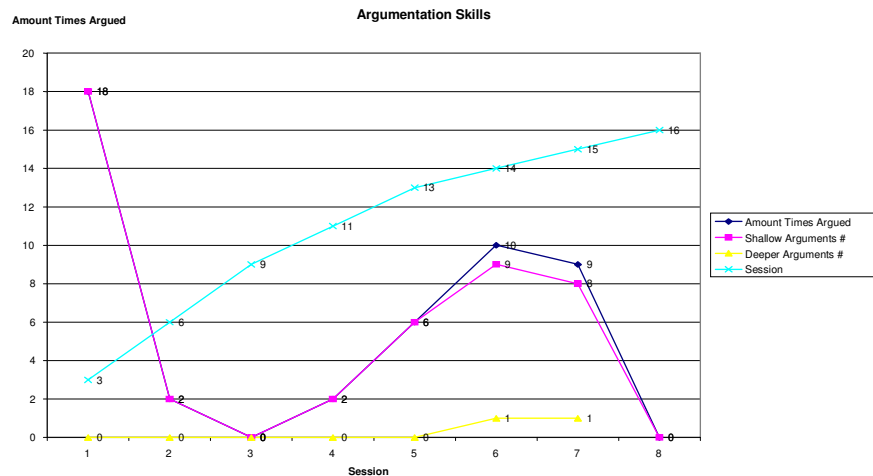


Figure 8.15: Tadeu's arguments

Tadeu answered in the pre-survey that he had done theater for three months in school and acted in one play for a history class when he was 15 years old, which translates to about one year before our work together. He also acted in one play in school, one month after we started our work together. This play was a collective work of students in the school, organized by the student who was going to be the monitor on our group. Tadeu wrote that he had no fear of going on stage, and he was not shy to act on stage (1, where 1 is not timid). He does dream of going on stage because “I want to feel that coldness on the stomach and see several people looking at me”.

He also wrote that he would like to use his own photos on *VFT*, because the audience would learn who he is, or else they would see his name and not see him. Tadeu answered that he has no difficulty in relating to peers. In his post-survey he claimed that he gained more experience with the Internet (5), but not really in manipulating a personal computer (3). He already had good knowledge about personal computers and Internet and knew

how to surf the web, so if he gained more practice, it was because he had one more chance to do it while at the computer lab during our sessions.

Score	1=low	2	3	4	5=high
Obtained experience w/ Internet					Tadeu
Obtained experience w/ Computer			Tadeu		
Learned about drama & digital play					Tadeu
Express oneself better					Tadeu
Improve argumentation skill				Tadeu	

Table 8.5: Tadeu's post-activity results

He claimed to have learned more about drama (5) where low=3/high=5 and to have learned how to create a digital play (5) where low=4/high=5. Against my observations, Tadeu believed that there was a shift on his ability to communicate; he answered that he could express himself better at the end of the study (5) where low=3/high=5, but on the other hand he did not explain why (this result was confirmed by the teacher survey and my observations). He claimed to have improved his argumentation skills (4, low=3, high=4), because “*VFT* helped to show me several ways to solve problems”. This answer might reveal that the analysis of scenarios and the deliberation dialogues evoked from the digital plays had a positive impact on Tadeu who had learned that one can reflect upon and discuss different solutions to a problem before actually solving it.

Tadeu did not answer the *Myself and Technology* post-activity survey at the end of the study; therefore I cannot compare his answers, but he scored himself fairly high for the technical items presented in the pre-activity survey ($M=4.6$) which was the highest compared to the other four participants who had an average of $M=2.6$ at the beginning and $M=2.9$ by the end. This result coincides with my observation of his interest in technological tools and tasks. Tadeu scored himself highly on all the items in this survey

which makes sense with his kind of posture/attitude, but might not necessarily be completely honest. His high score in Caring ($M=4.6$) matches my observations, because he did demonstrate a strong willingness to support me and the group; he scored a mean of 4.75 for Confidence, 5 to Connection, 4.5 to Contribution and 4.88 for Character.

Tadeu's art teacher answered in the pre-activity survey that he was a good observer and was quiet, but on the other hand he had strong vanity (this makes sense with his high self-reported scores). She claimed that he needed to be stimulated to better express himself. She did not know if he was shy, but thought that he did not like to speak and express himself; she gave him the score of 3 for expressing himself in class where and a score of 2 for argumentation skill (indicating that Tadeu argued poorly for his ideas).

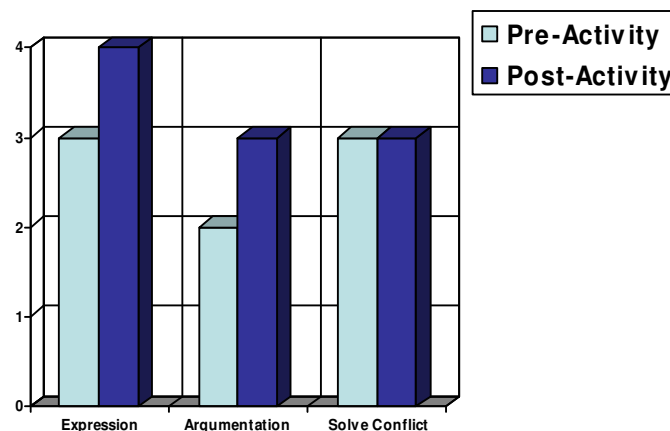


Figure 8.16: Tadeu's abilities according to teacher survey

In the teacher post-activity survey, she indicated that she did not observe much change in Tadeu's argumentation abilities, scoring a 3 for him; she could not evaluate changes in expression abilities because he was always so quiet. The teacher's evaluations of Tadeu were similar to mine, with the exception that my activity was less structured than a classroom setting, and I was able to observe the dynamic of Tadeu with his peers. In those peer relationships, he certainly did not show any level of shyness or difficulty to

express, but he chose not to voice his opinions unless directly asked by one of us during the discussions.

8.4.3 Lucia's Journey

Lucia from Kabum declared herself shy and acted shy until at least the 10th session. At the beginning, she would barely answer my questions and her voice was so low that I could not hear. She showed a lot of interest in the computer and was eager to learn how to use it. She knew three of the five participants; therefore the environment was not strange for her. She did not engage so well in the warm-up games at the beginning either, unless it was a pretend-play one.

In her pre-activity survey she wrote that she wanted to join this activity in order to develop and learn about computers; she had participated on a theater course for fifteen days and claimed not to have a fear of the stage, but scored a 3 for being somewhat shy to go on stage (5=very timid) with low=1/high=3. She dreamed to go on stage. Lucia scored 1 for computer experience with low=1/high=3 and she did not answer what kind of tool she used and for how long, which coincides with her affirmation that she had never used MSWord.

Lucia said she had no problems relating with peers; she claimed that she could not visualize a solution to personal problems; she rated this as a 2, where 1 is the lowest on the Likert scale of 1 to 5 (low=2/high=5). She claimed that she has a good awareness of issues in her neighborhood (4) (low=2/high=5) and pointed out that her neighbors should get better, stop drinking, and clean up the streets. Lucia responded well to the conflicts I

introduced in the survey, even though she did not answer all the questions, but it seemed as she can deal with conflicts relatively well for her age. She had no problem during the study and she solved well the little issues that showed up as other children teased her.

Lucia's teacher stated on the pre-activity survey that she was somewhat shy in the classroom, because she participates very little. She claimed that Lucia is smart, and even though a bit shy, she expressed herself naturally in classroom. The teacher gave Lucia a score of 4 for good expression and good argumentation of ideas.

Lucia started the experiment very quiet without saying anything unless I asked her a question. For example she would tell a story if it were an activity required by me. At the 2nd session when we had our first discussion about unjust situations, Lucia did not say anything and I turned off the camera in order not to embarrass her even more. Up to the 6th session she talked very little except for the enactment of her own character, later she engaged in synchronizing images with character lines and expressed herself three times with one thick argument at the interview (Excerpt 6.1 in Appendix 4).

During the 9th session, Lucia started to show signs of improvements; she voiced her opinions nine times during the activities of synchronizing image with sound and recording the lines (excerpt 9.1 in Appendix 4); during a quick interview at that session she expressed her opinion once. During the 10th session she voiced her opinions six times while creating the digital play (excerpt 8.4 and excerpt 8.5). During the same activities of recording and animating the scenes in session 11, Lucia shared her point of view fourteen times without my interference (Excerpt 5 and Excerpt 11.1 in Appendix 4). Her points

were also getting a bit longer and her ton of voice increasing. She reached her maximum during the 14th session with two deeper arguments.

During an interview at session 14th when asked what she had learned with VFT, Lucia said “I learned that; I learned that; I learned that; I did not know how to use, what is the name of this thing” (she pointed with her head to the thing and someone said mouse); I asked Lucia if her shyness had decreased, and she replied, “it decreased, because I used to get very embarrassed, I used to get embarrassed.” Here is a passage of this interview when I was focusing on Lucia:

Interview	14th session
<i>Researcher:</i> Do you think she is more outgoing in school and in other places after we started working here together? <i>Marcelo (laughing):</i> at school she is all [open]! (<i>meaning outgoing, but kind of a dirty joke</i>) <i>Researcher:</i> oh, was she shy only here? <i>I ignored his dubious meaning.</i> <i>Lucia:</i> At school I was not outgoing, I would get to school, I would seat in a spot and stay like that (<i>she made a sad face</i>). <i>Lucia:</i> Now I am more.... <i>Marcelo (interrupting her):</i> wild... “piveta” [bad girl] <i>Researcher:</i> outgoing, free? <i>Lucia nods yes.</i>	

Excerpt 8.20: Rotary’s 14th session – participant interview

This excerpt shows a bit of the social context in which the participants’ growth occurred. Lucia is cast (humorously) as a “bad girl” for becoming more expressive; but she does seem to understand that it is a joke and not meant badly.

Lucia expressed herself more and with short phrases, but during the 14th and 15th session, she took good stands and delivered four deeper arguments (Excerpt 8.14). To me this was huge for any of those children who have a relatively inadequate education and do not seem to have the power of communication and expression; with the exception of Noelia

and Marcelo, all the others would answer any of my questions with a four-word phrase most of the time and would also be brief in talking to each other.

There was not enough time to give these children's teachers post-activity surveys and get them back before we finished, because I had no contact with their school and had to send the survey to their teachers via the participants.



Figure 8.17: Lucia's Dramatic Faces

Lucia claimed in her post-activity survey that she did not gain much experience with the internet (3) (low=3/high=4), but she scored a 4 to experience acquired using computer (low=3/high=4). She claimed to have learned something from drama and from creating a digital play (5) (low=3/high=5). She wrote that it does make sense to create a digital play because one learns several things until one can do it alone; she scored this as a 5 (low=4/high=5).

Lucia scored a 5 for believing that she could express herself much better at the end of the study and scored herself as a 4 for improvement of argumentation abilities. She wrote that she would invite other people to participate in this kind of activity to learn as much

as she did. She said she had fun using *VFT*, because she created a play and found out how great it was to learn *VFT*.

Score	1=low	2	3	4	5=high
Obtained experience w/ Internet			Lucia		
Obtained experience w/ Computer				Lucia	
Learned about drama & digital play					Lucia
Make sense to create a digital play					Lucia
Express oneself better					Lucia
Improve argumentation skill				Lucia	

Table 8.6: Lucia post-activity self-assessment

Her results for the *Myself and Technology* survey shows an slight increase in her confidence using computers (M=2.25 & M=2.75)⁴ and a slight decrease in all other C's, probably because she over scored herself at the first time answering the survey; Caring (M= 4.25 & M= 3.25), Character (M=3.13 & M=3.13), Competence (M=3.6 & M=3.4), Connection (M=3.3 & M=3.17) and Contribution (M=3.5 & M=3.25). She increased her score in Confidence except for statement 13 that had to do with technical computer skills, the same happened for statement 24, "I have a high-level understanding of how a computer works" which was the only one for which she increased the score for Competence (all the others had to do with more technical abilities). The results of this survey would demonstrate better the increase on confidence and competence if the participants had not over-scored the first time the survey was administered, which was a pattern that I noticed with the whole group.

Lucia's self-assessment, the teacher pre-survey, and interviews were in line with my observations and video footage; she seemed to have improved during our work together;

she became more self-confidence and did not express fear when voicing her opinions towards the end.

The graph below illustrates the number of arguments Lucia spoke; they were broken into thick and shallow arguments. Even though the quantity of arguments varied by session, one can see that at the end of the work she was arguing more often and the arguments were consistent in quantity between the last two sessions.

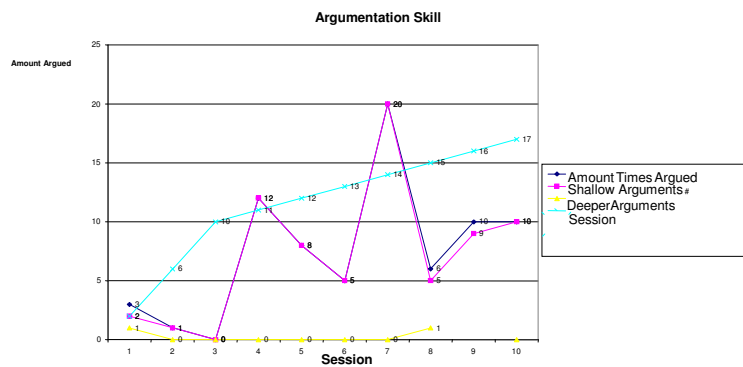


Figure 8.18: Lucia's improvement

There is no 2nd distinctive case in this group. Noelia showed no change, probably because she was already very outspoken and had relatively good argumentation skill compared to the group. Danilo exhibited a bit of a change, but this was difficult to capture in numbers. Danilo's teacher does consider him shy, but with good argumentation skills and expressiveness. She believes that he omits expressing his opinions, but when asked directly he does just fine. I agree with that, and it seemed to me that he engaged a bit more as we progressed with the work.

Tania's teacher also thinks she can express herself well, but she never does and seems to lack interest in the subjects. I noticed the same at the beginning, but when she started to engage, she participated actively in the discussions and enactments.

8.5 Results in Expressive Fluency

According to my observations of group dynamics (how the participants interact with each other and with me) at Rotary, their way of using *VFT*, their engagement and performance during the dramatic warm-ups and improvisations, some improved expression skills more than others and the ones who were already expressive (such as Irene and Lillian) demonstrated no change. Their self-assessment and the teacher survey validate my observations as documented via video tapes and my notes.

According to the pre-activity survey, they all had very little experience with theater, except for Irene who had some prior involvement and courses. They all wanted very much to be on stage and Lillian was the only one who expressed some fear of enacting on stage. In their post-activity survey, they all claimed they were able to express themselves better after the study, with scores varying between 4 and 5, except for Adroaldo who claimed a 3. They argued that they could express themselves better because they simulated several situations where they had conflicts to solve, and they worked with communication between themselves; because they learned to relate with people they did not know; and because they learned a new way to express themselves: the virtual way.

The art teacher answered in the post-activity survey that she saw improvement in expressive fluency for Adroaldo and Rebeca, but just a bit for Lillian. In the pre-survey she scored a 3 to Adroaldo, a 4 to Lillian and a 3 to Tadeu; she scored two points higher to Adroaldo and one point higher to Lillian and Tadeu without no difference to Rebeca and Irene. This contradicts somewhat her answer about Tadeu. He did demonstrate good expression (facial and bodily) during dramatic exercises and improvisations, but not during (non-acting) talk.

The statements 3 and 14 (Table 8.1) of “*Myself and Technology*” survey relate to expressive fluency and there was an increase of means from beginning to end of the study for the first statement ($M=1.7$ & $M=3.6$), but a slightly decrease for the second one ($M=2.7$ & $M=2.3$); perhaps because the second involve robotic constructions and I did not call their attention in order to ignore this item. This result matches the overall improvement of expressive fluency.

At Kabum, Marcelo and Noelia started the study already with relatively good expressive fluency; they had no difficulty to voice their opinions and would do that all the time, sometimes even taking the words out of the mouth from the other participants and dominating the group. In fact after Noelia joined the group, it seems that Marcelo slowly decreased his participation; it was as if Noelia was stronger than he (she acted more mature than him) and maybe he felt he was not the star in the group anymore. I am not sure if there was also a relation of power, because Noelia was white while Marcelo was black. I did not see any change on their expressive fluency, but Lucia and Tania showed a

good shift while Danilo behaved slightly more comfortable and expressive towards the end.

According to their pre-activity survey, none of them considered themselves shy to get up on stage, even though Lucia and Danilo put themselves in the middle of the Likert scale of 1 to 5 (3). They all scored above the average for improvement on their ability to express, except Danilo (3).

They did not seem to have developed artistic expression, especially because this requires more time on dramatic exercises and drama per say (Way, 1967) than what I could offer. Marcelo, Tania and Noelia had great potential to develop artistic expression.

The graph displayed below relates to the number of times they expressed themselves through out the sessions during all activities. It shows how the quantities of arguments change from session to session, but depicts an increase between the first and last session.

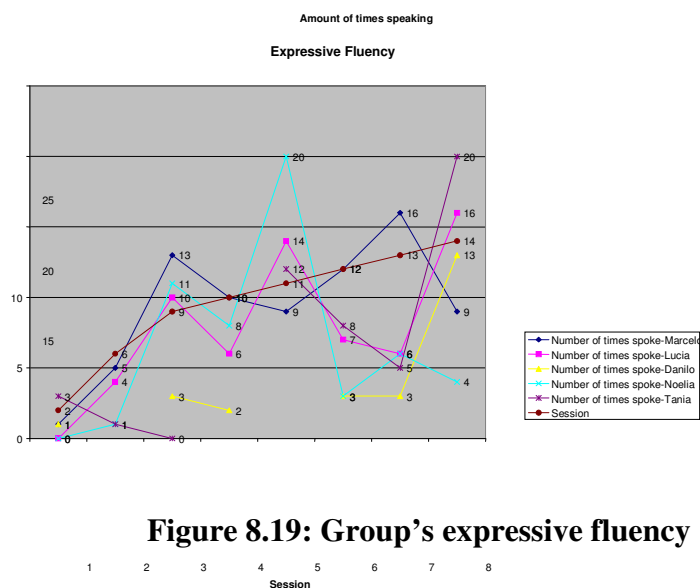


Figure 8.19: Group's expressive fluency

Aplicação's teens exhibited good expression abilities from the beginning and their survey answers matched somewhat my observations. Most of them claimed to have slightly improved their abilities to express (they scored a 4), one disagreed, but nobody explained or gave examples of why they thought they improved their ability to express.

They all answered to have improved their argumentative skills, but the only one who wrote about it and had scored a 4 said that “the difference was little, because he already had some experience.” The teacher of two of these six students scored a 4 on their ability to argue their own ideas.

8.6 Acceptance and Usefulness of *VFT* by Youth

At Rotary, the measurements of the usefulness of *VFT* were made not only through surveys and interviews, but also through my observations of their reactions and behaviors while using *VFT*. I took notice of their level of engagement and excitement with the tool which were high with exception of the Dramatic Face (DF) that did not correspond to their expectation; they were not interested in caricatures, but on creating realistic expressions with the image of their faces; this finding diverged from my initial idea that they would like to use DF to create cartoon faces.

Score	1=low	2	3	4	5=high
Learned to create a digital play				Irene Lillian	Adroaldo Rebeca Tadeu
It makes sense to enact on a virtual stage			Tadeu	Irene Lillian	Adroaldo Rebeca
It was easy to use VFT				Adroaldo Rebeca Tadeu	Lillian

				Irene	
I had a lot of fun using VFT				Irene	Lillian Adroaldo Tadeu Rebeca

Table 8.7: Rotary’s post-activity results for acceptance/usefulness of *VFT*

They all responded to have learned how to create a digital play, Adroaldo, Rebeca and Tadeu self-scored a 5, while Irene and Lillian scored this as a 4. The same exact score was given for the statement that it does make sense to create a virtual digital play. When asked why, Adroaldo wrote that “a digital play helps shy people, because they don’t have to expose themselves right away to several other people”. Tadeu simply wrote that “it does make sense and digital play is good”, which does not sound as an argument; Rebeca claimed “it is very good to learn what one does not know about things one never saw and it is very important to me and all the ones that are doing *VFT*”; Irene wrote that “it is not necessary to deal with a real stage to express something and through a virtual stage the message can be passed along with efficacy”; Lillian claimed that “shy people can express themselves better with digital theater and also they can interact with diverse people”; she expressed that it also makes sense because it amplifies the knowledge to manipulate the computer and interact with other people in a different way.

I asked a similar question such as “does it make sense to enact on a virtual stage?” looking to find out if they really understood the difference between virtual and physical theater and to obtain more explanations. Their quantitative answers were exactly the same as before with the exception of Tadeu who scored a 3. Adroaldo wrote that it did make sense because *VFT* was different from any thing he saw before and it is good to innovate; Rebeca said it is good to learn what one can do on the virtual stage; Irene wrote

that it is a good way to express something, helping the people who are watching to better reflect; Lillian did not answer this one, claiming it was the same thing as the previous question, and Tadeu simply wrote that it is something different and cool.

I explicitly asked about the difference between a virtual play and a play presented on a real stage, they answered that “it is easier to create and to enact a virtual play”; that “they do not need to present the play in person on a *VFT*”; that “on a virtual play there are not a lot of people looking at you”. They all strongly agree that it was easy to use *VFT* (low=4/high=5). They also claimed to have had a lot of fun with *VFT* (low=4/high=5). When they were using *VFT* for the second time, I asked them what they thought from *VFT*:

Participant Interview
<p><i>Adroaldo</i>: I find it cool. I want to see after it is finished.</p> <p><i>Researcher</i>: But up to now; do you like it? Is it easy to manipulate? Did you have any difficulty?</p> <p><i>Adroaldo</i>: I like it...it is easylet me see...no, it is bad when we make a mistake and we have to start it all over again.</p> <p><i>Researcher</i>: Do you mean? Do you have to record again?</p> <p><i>Adroaldo</i>: Yes</p> <p><i>Lillian</i>: I don't like the part of the photos, because it looks as a big window, I don't know...</p> <p><i>Researcher</i>: What about you, Tadeu?</p> <p><i>Tadeu</i>: I find it interesting, cool too; sweet, I like it.</p> <p><i>Researcher</i>: Did you find hard to manipulate it?</p> <p><i>Tadeu</i>: No, no.</p> <p><i>Irene</i>: I found a bit complicated, because when you make an error, you have to go back.</p> <p><i>Researcher</i>: When do you make a mistake recording?</p> <p><i>Irene</i>: Yes.</p> <p><i>Researcher</i>: What did you want? Did you want just to record it over?</p> <p><i>Irene</i>: Yes.</p>

Excerpt 8.21: Rotary – participant interview

The important facet of the tool was the ability to “do things over” if they are not good enough, even though that was not clear to Irene at this point. The next time I interviewed them about the activities supported by *VFT*, such as discussing the play of Aplicação

group on-line and asking them about their expectations, they had more elaborated arguments and the feedback was rich:

Participant Interview

Researcher: What do you think of the idea to chat on-line with the group from Aplicação to discuss about the plays?

Lillian: I think it is cool, because it is always good to listen to opinions, be them good or bad; to improve something that needs improvement, I think it is interesting; it is a different way.

Researcher: Will it be a different use of the internet?

Lillian: Not in the use of the internet, because we have this thing of chat, but I mean to discuss about theater in the net.

Researcher: A specific theme?

Lillian: Yeah, exactly!!!

Researcher: Do you think would VFT be useful to youth that like theater?

Lillian: I think so; I liked VFT, I only did not like to make the faces (DF), because it looks ugly. Outside of that, I liked it.

Researcher: Do you think that VFT is useful in which sense?

Lillian: For example there were scenes that we did not take enough pictures; It gave the opportunity for us to extract them from the video tape, I did not know that. It would be of interest for the fact that manipulating computer by itself arouses interest, because nowadays when one talks about computer, the other is already there seated, ready for it.

Adroaldo: ... It is interesting, interactive; we can manipulate, change if it is wrong, go back and do it again.

Researcher: And [what about] the fact that one can watch the play on the computer at home?

Lillian: I think it is interesting and good, but I am one of those who like to go out...I think it is also interesting the person to go to a Theater and watch there, don't be tied to only one rule, "I am only going to watch it on the computer."

Researcher: Exactly, only if one could not go to the theater

Lillian: Right.

Researcher: Do you think that a shy person who likes theater would benefit from VFT?

Lillian: No, if she/he is very shy, but more or less shy then yes, because in the computer she will interact with other people in any way, so for a VERY shy person, independent of being in the computer, I don't think it would work well, she would not agree to do it, get it? I think that is a no, that's it.

Adroaldo: Very; because we are doing a closed theater; the people will be here, but everything will be close, so I don't think she will be ashamed when the group is here together, because she will know the people. At the beginning is a bit hard, but then she gets to know everybody and it becomes easier; and this is very useful for the shy people who are afraid of public, because they record it.

Excerpt 8.22: Rotary – participant interview

The participants do acknowledge that shyness is a problem, and that VFT would help shy people, though it might be significant that they no longer identify themselves as shy.

One can not discard the possibility that these students were trying to be nice to me by giving positive feedback, but it is a fact that Lillian was always honest in her oral and written responses and also they had the option to answer the survey anonymously. Adroaldo seemed to judge *VFT* by how much it was good and useful for him and I believe his assessment was also honest.

Kabum's group seemed to really enjoy creating a digital play and seeing themselves in the animation on the computer screen. Their faces lit up, big smiles, and bright eyes appeared (see track # 10). They asked me if they could create another play after vacation. They begged me for a CD with the video footage and the digital plays they had made, so I gave this to them.

Score	1=low	2	3	4	5=high
Learned to create a digital play			Danilo	Marcelo Noelia	Lucia Tania
It makes sense to enact on a virtual stage				Danilo Marcelo Noelia	Lucia Tania
It was easy to use VFT			Lucia	Danilo Marcelo Tania Noelia	
I had a lot of fun using VFT				Danilo Noelia	Lucia Tania Marcelo

Table 8.8: Kabum's post-activity results for acceptance/use of *VFT*

They all claimed on their post-activity surveys to have learned to create a digital play, Danilo was the only one who scored a 3, everybody else scored 4 or 5. They all stated that it did make sense to create a digital play because "it is very cool and good for other people who will have the chance to see good people"; because "they learned a new thing and this change a bit, since they are used to only see plays in the theater".

All of Kabum's children scored above the average on the Likert scale for the question "Does it make sense to enact a play on a virtual stage?"; their reason was that "when you enact a play, it happens only at that moment while in a virtual stage you can see whenever you want"; they also claimed that "it made sense because people will see several things such as not to throw trash on others, learn how to have good manners and not to discriminate by color"; because "they became less shy"; and because "they made such an effort that people should see how much effort they made". One answered that it is also different and cool.

Further I asked what the difference was between creating a digital play and enacting on a regular theater stage. I got answers such as: "some people don't like to go to the theater, but like to stay on the computer, so if the digital play is on a web site they will see how good it is"; "we can see the digital play several times in the computer and the real one we see only during the show"; "the audience applause, but we are the ones who did the play"; "the difference is that either you do on stage or make it digital, so first you do it on the stage and then digital".

They all claimed that it was easy to use *VFT*, but Lucia scored it with a 3. When asked if they had any difficulty with *VFT*, they wrote "no, because the teacher helped us"; "no, I really liked to use *VFT*", "I loved to use it". Marcelo said "more or less, because one needs to have a lot of ability to manipulate it". They also stated to have had a lot of fun using *VFT* (low=4/high=5), because "I made a play and then saw how good it is to use

VFT”, “yes, using *VFT* I had more freedom”, “yes, we learned to get into a chat room; it was cool.”

Despite Aplicação’s teens short exposure to *VFT*, they seemed to have fun using it and loved the idea of the animation with their own images; one of them did not know that putting images over voice was the regular way of doing animation, it was exciting for them to be doing a similar process as in Hollywood.

They claimed that theater was their passion and some of them stated that they wanted to improve their ability to express and communicate. Some of them stated that they wanted to follow a theater career.

Aplicação’s participants stated not to have learned much about drama (low=2/high=5), but claimed to have learned about digital play (low=3/high=5). They all wrote that made a lot of sense to create a digital play (low=4/high=5), because “it helps to improve their critical sense and to solve problems”; “it is a different way to work with theater and above all very pleasant the way how it works”; “it makes the people who are watching reflect more about the theme portrayed”. When asked if it made sense to enact the play on virtual stage, most of them highly agreed (low=3/high=5), because “it will reach a bigger number of people”, “it is a different way of working”, and “they learned to work with another kind of equipment”.

Inquired further about the difference between creating a digital play and enacting a play on a theater stage, they replied that “it does not make a difference, because everything

needs to be made with dedication, liking what one is doing and since there was a lot of improvisation, it sounded the same to me”; one other wrote that “the difference lies perhaps on having the sensation of a real audience instead of a digital one”; they affirmed that “the difference is the contact with the audience”; “the compromise is the same, but the way of doing is different and the experience is very important”; “enacting on a real stage provokes nervousness while it is more calm at a digital play”; and that “in the digital play you can make a mistake and do it again, while in the real stage if you make a mistake, you need to be ready to improvise on the spot”.

Most of them stated that it was easy to use *VFT* and that it was a safe environment to exchange opinions about conflict themes (low=3/high=5) because “everything made with *VFT* can be changed if it is not good and we are not so exposed as in the regular stage”; “we can make a mistake and go back until we reach improvement”; “I don’t think it is so secure in relation to the stage theater, but it is a very new way for me”; “one stays more comfortable without the audience”; “one can make a mistake in the digital play, but not in a regular stage.”

They all wrote not to have had any difficulty with *VFT*, especially because they had a teacher to support them. Almost all of them had a lot of fun using *VFT* (low=3/high=5) and wrote that “to work with either virtual or real theater is a pleasure and happiness”; “it is always good to have fun with new things”; “it is very interesting how this system works”; “the group became stronger”; “I could orient myself better in the theater and in the computer.”

Score	1=low	2	3	4	5=high
Learned about drama		Dante	Paulo	Tati	

			Luca Jessi		
Learned to create a digital play			Dante	Luca Tati	Paulo Jessi Flavia
It makes sense to create a virtual play				Dante Paulo	Flavia Jessi Lucca Tati
It makes sense to enact on a virtual stage			Dante	Tati	Paulo Luca Flavia Jessi
It was easy to use VFT			Jessi	Paulo Luca	Flavia Dante Tati
I had a lot of fun using VFT			Paulo Dante	Tati	Fernanda Luca Jessi

Table 8.9: Aplicação's post-activity results for acceptance/usefulness of *VFT*

Aplicação's participants declared it was fun to use it and that it made perfect sense to create virtual plays. Considering that this group of youth had experience and passion for theater, this finding is very important to me and inspiring to continue improving *VFT* in order to help children to express and argument better. By creating a virtual play that fosters meaningful interactions and debates, *VFT* becomes a tool that stirs peer interactions encouraging the practice of argumentation and expression abilities. These abilities are some of the most important ones for the formation of engaging citizens.

8.7 Results on Conflict Resolution

This section discusses the lack of results for conflict resolution for the three groups. Conflict resolution is related to developmental stages (Piaget, 1977) more specifically the social-cognitive domain (Keagan, 1995) and a longer study needs to take place to see change for this skill.

8.7.1 Rotary School

Observing Rotary's participants from beginning to end, I did not find any noticeable improvement in their conflict resolution skills, even though they themselves answered in the post-activity surveys that they experienced a positive shift. The role playing – especially the opportunity to discuss and solve the issues posed by the on-line plays – had a potential impact that could bring to a shift on solving conflicts, but one needs to undergo such an intervention for a longer period of time for a change to be seen and measured.

According to their pre-activity survey responses, Adroaldo and Irene were able to imagine solutions and apply them to their personal problems (4, low=2/high=4), while the others could sometimes imagine solutions, but not apply them. Lillian and Rebeca had pacifist and accommodating solutions to both conflicts presented in the survey (see section 6.10.1, pg 12). These answers confirmed my observations that both of them had a difficult time in solving other plots of conflict that they encountered during the study.

When asked in the pre-activity survey if they could solve conflicts well that would arise during classroom time, their teacher answered that only Irene and Lillian demonstrated this skill because of their ease of expression, while Adroaldo, Rebeca and Tadeu did not seem to enjoy expressing their opinions. She scored a 2 for Adroaldo, a 3 for Tadeu and Rebeca, a 5 to Irene and a 4 to Lillian (this one does not match well with my observations).

Score	1= bad	2	3	4	5=very good
Pre-activity		Adroaldo	Tadeu	Lillian	Irene

			Rebeca		
Post-activity			Tadeu	Rebeca	Adroaldo Irene Lillian

Table 8.10: Art teacher scores the group on conflict resolution ability

The teacher claimed in the post-activity survey to have noticed a change in conflict resolution skill in Adroaldo, Rebeca, and a bit for Lillian, and she was still not sure about Tadeu. She gave a 5 to Adroaldo, a 4 to Rebeca, a 5 to Irene and Lillian, and a 3 to Tadeu.

In the participants' self assessment (post-activity survey) they considered that they learned new ways to work in team and scored themselves with a 5 (Rebeca and Tadeu); Irene and Lillian with a 4 and Adroaldo with a 3. Adroaldo, Rebeca and Lillian stated that the workshop helped them to better resolve community issues (5) while Irene and Tadeu slightly agreed with the affirmation (3). When asked if *VFT* provided a safe environment to discuss issues of conflict, three of them strongly agreed (Adroaldo, Irene, Tiago=4) while Lillian and Rebeca slightly agreed (3). Irene wrote that “sometimes it is better to enact conflict issues on a virtual stage, the audience might feel emotion, but at the same time stop to reflect”.

Score	1=low	2	3	4	5=high
Learned new ways to work in team			Adroaldo	Irene Lillian	Rebeca Tadeu
Help to better resolve community issues			Irene Tadeu		Adroaldo Rebeca Lillian
VFT is a safe environment to discuss issues of conflict			Lillian Rebeca	Adroaldo Irene Tiago	

Table 8.11: Rotary's post-activity results for conflict resolution

These survey responses give hope that *VFT* – in conjunction with the debates generated by the digital plays – can foster the enhancement of conflict resolution skill, but of course one has to bear in mind the fact that this is also a developmental learning process and follows developmental stages studied by Piaget (1977), Keagan (1995) and others; therefore a longer intervention is necessary to be able to measure change in conflict-resolution skills.

8.7.2 Kabum

The Kabum group found good solutions to the problems posed by the plays and the only one that seemed a bit confrontational on her solutions and behavior was Tania. She claimed on her post-survey to have improved her ways to solve conflicts; she wrote “because before when there was a fight, I would get involved in it and now I don’t; now I speak calmly.” They (except for Lucia) agreed that they learned new ways to work in teams where low=3/high=5.

Danilo reactions and solutions demonstrated that he avoids problems and prefers to escape from any confrontation. They all claimed to have learned new ways to solve personal problems with the exception of Noelia. When asked if *VFT* helped to solve community problems they scored average on the Likert scale (Tania & Noelia) and above average (others) (low=3/high=5). They all agreed that *VFT* is a safe place to exchange opinions about conflict situations (low=4/high=5). They wrote that “on the stage an accident might happen”; that “they would talk in front of less people through *VFT*”, “*VFT* is safer for a shy person” and that “on a stage a real event might happen, such as a fight, while during a *VFT* workshop they are with a responsible adult person”.

Score	1=low	2	3	4	5=high
Learned new ways to work in team			Lucia	Danilo Tania	Noelia Marcelo
Learned new ways to solve personal problems			Noelia	Danilo Tania	Lucia Marcelo
Help to better resolve community issues			Tania Noelia	Danilo Marcelo	Lucia
VFT is a safe environment to discuss issues of conflict				Lucia Danilo Marcelo	Tania Noelia

Table 8.12: Kabum's post-activity results for conflict resolution

Even though they expressed some improvement in conflict resolution skill, I only saw a slight improvement for Tania, mainly because I saw her considering and changing from an aggressive position to a less confrontational one towards the end of our time together.

8.7.3 Aplicação

I administered all the surveys to Aplicação group, but I received five completed pre-activity and post-activity surveys out of eight participants, and only two pre-activity teacher's surveys. I present some of their important responses regarding the usefulness of *VFT* and the result of their answers to pre-activity and post-activity surveys. I did not notice any change in their conflict resolution skills, argumentation skills, or expressive fluency, perhaps because our time together was short, but also because they seemed very outspoken, loved theater, did the warm-ups and improvisations very well, and they preferred to act out solutions rather than to discuss them, therefore they were most of the time "in character."



Figure 8.20: 1st improvisation of response to Rotary's play

Six out of the eight students participating responded to the post-activity survey. They claimed that the project helped them to solve personal problems and to improve their ability to solve community problems (low=3/high=5). Almost all agreed that *VFT* is a safe place to exchange opinions about conflict situations (low=3/high=5). They wrote that “everything done with *VFT* can be changed if it looks bad, and we are not so exposed as on stage”, “because we can make mistakes and come back until we reach an improvement of the work”, “it is not so secure as on stage theater, but it is a very new way for me”, “because you become more comfortable without an audience”, “because you can make mistakes on *VFT*, but not on stage.”

Score	1=low	2	3	4	5=high
Learned new ways to work in team			Dante Luca	Paulo	Flavia Jessi Tati
Learned new ways to solve personal problems			Luca	Paulo Jessi Tati	Flavia Dante
Help to better resolve community issues			Luca	Paulo Dante Tati	Flavia Jessi
VFT is a safe environment to discuss issues of conflict			Paulo	Dante Tati	Flavia Luca Jessi

Table 8.13: Aplicação's post-activity results for conflict resolution

I got two surveys back from the teachers, so for these two students, the teacher claims never to have seen the students involved in any conflict during class time and therefore could not judge their abilities, but both seem to be calm teenagers. My observation was the same, all eight students seem cool and unwilling to get in trouble or fight with one another.

8.8 Conclusion

The core idea of *VFT* is of a virtual play that portrays issues of social conflicts and/or oppression; these issues are catalysts for discussion, especially among people whose lives are affected by these issues.

The data of this study indicates that when the issue is meaningful to the youth, they are willing to express themselves and trying to come up with solutions to those issues. Accessing plays from other groups who are far away, reenacting part or all of those plays and creating the digital response increased the youths' time reflecting about the best way to solve and elaborate arguments. This process also increased the chance of getting better in acting, expressing and arguing.

Another finding is that watching other *VFT* plays brought new issues to the forefront, making the discussion exciting. *VFT* toolset extends the face-to-face interactions by providing means for separate groups of youth to see each other play, modify, post on the server and exchange a dialog through action, or even through words via web-chatting.

The engagement of the participants during the discussion of the issues presented by their play and by the play of the other groups was rich and intense. The core idea of *VFT* is that one should not only watch the virtual play, but engage in the activity of modifying it to give a new solution. I recognize the importance of the mentor who introduces the questions to help the participants go deeper in the matter, and I would be interested to find out how an on-line discussion could be productive and deeper without someone supporting the youth to move a step further in their reflection and responses to each other's plays.

Other studies (Bers, 2001; Bruckman, 1998) have proven that on-line interaction extends collaborative learning; in this study, given limited connectivity, I could not gather data from on-line interactions in order to directly show its impact, but the discussions generated by watching the virtual play of another group gives an indication of how the on-line interactions could have extended their collaborative enactment of the plays.

The last meeting – where the participants preferred to meet face-to-face instead of through web chatting – generated good exchange of points of views about the importance of theater as a vehicle to help the youth reflect about pressing issues and from there rehearse a way to find solutions (Excerpt 20 in Appendix 4). These exchanges of points of views are the core of collaborative learning.

9. Conclusion

9.1 Learning Goals

My initial goal in this research was to develop an online Virtual Forum Theatre in which youth groups in disparate locations could improve their skills in argumentation, conflict resolution and expressive fluency through a collaborative process. My hypothesis was that children often know more than they think they know and that there must be ways to tap into this potential. I conducted three studies that shared the research question: how does *Virtual Forum Theatre* support collaborative learning? Another question was always present in the background: what improvements to the toolset would help it better address the needs of the youth using it? While in the first study I was interested in discovering anything the participants could potentially learn by using the toolset. In the next two studies, I restricted my exploration to the three main learning goals: argumentation, expressive fluency, and conflict resolution.

The findings on argumentation skill and expressive fluency improvements were directly related to the dramatic activities and to the debate around the issues presented by each virtual play. The *VFT toolset* functioned as a catalyst to these discussions and augmented face-to-face interactions, allowing discussions to happen asynchronously and uniting youth who were geographically separated.

Several researchers have proven the importance of drama in the improvement of expression, argumentation, and conflict resolution skills (Way, 1967; Heathcote, 1976;

McCaslin, 1996), *VFT* extends these findings by providing a mechanism by which youth can interact from a distance, thus increasing the reach and influence that drama can have on youth lives and adding the knowledge of technological tools.

9.2 Process, Toolset, and Product

In the study, the *VFT process* enabled use of the *VFT toolset* to construct a product that was a virtual play, capable of engendering discussions and repeated resolution attempts. One goal of this research was to gauge the effectiveness of each part.

The *VFT process* allowed the participants to collaborate while practicing dramatic skills by playing dramatic games together, to collaborate during creation of their dramatic script through improvisations and debates, to collaborate when responding to a virtual play of another group through acting out solutions to the issues, through on-line chatting or through discussions within the group (see Chapters 7, 8 and 9).

The *VFT toolset* encouraged collaborative learning during the creation of the digital play through discussions about which images to choose to animate the scene, how many images to use per second (defining the pace of the animation), how the character line should be delivered, how long or how short it should be, which kind of emotions it should carry, how many intervention frames (“virtual joker”) it would be necessary to create, and how to design the intervention frames (see Excerpts 1, 2, 4, 5, and 6 in Chapter 8). Basic operations that supported the above included recording the characters’ lines and synchronizing images with the sound track.

The *VFT digital performance* (playback of the digital play) generated an “object to enact with”, sparking participatory acting out of solutions as well as collaborative discussions of solutions followed by alternative enactments. The interchange of virtual plays between the groups proved to be the culmination of the *VFT process* when the most productive, fruitful and enlightening learning happened (see Chapter 8, section 8.8.7). All the activities that occurred in these studies were intrinsically collaborative and participatory, in no moment there was one participant working alone, except when she/he was recording a character line (even though encircled by at least three other participants).

Even though there were few on-line interactions between the participants in the third experiment, my laptop was a publication medium that made plays available to all groups. My laptop substituted for the lack of connectivity and allowed collaborative learning to happen between groups. The data suggests that responding collaboratively to each other’s plays through action and discussion showed potential for improving the participants’ argumentation and expressive fluency.

The findings explored in the next sections are related to the *VFT* toolset, process and performance. The *VFT* toolset, process and performance reinforce each other. The creation of the digital play happens after a series of warm-ups and improvisations (process), the *VFT* performance gives participants another chance to improvise another script and create another digital play as response.

9.3 The importance of *VFT*

Most of the participants (independent of their experience with theater or drama) had a similar reaction to *VFT* when comparing it to physical theater, and even though their personal words varied; their words are well represented by these examples:

- “You don’t have to do everything all at once and you don’t have to get everything right.”
- “More people can see it and you don’t have people watching you while you do it”
- “You learn more computer stuff and even new words.”
- “There is no audience and the actor/actress feels more relaxed and comfortable”
- “A digital play helps people who are shy for the fact that they don’t need to “expose” themselves right away to several people [audience]”

The graph below with post-activity survey data demonstrates the same positive result; n=5 for SYCC, Landulfo, Kabum and Rotary and n=6 for Aplicação:

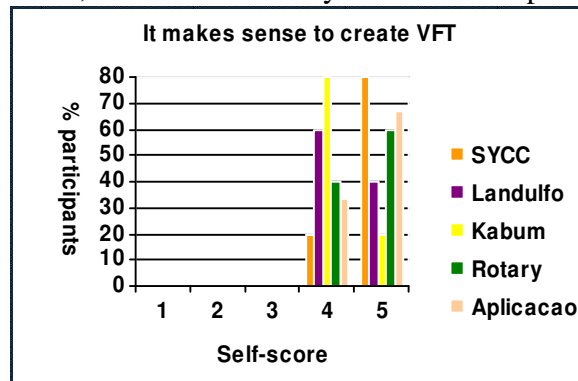


Figure 9.1: Importance of *VFT* to participants

9.4 Fun and Engagement

According to Papert (1980), it is important to gauge the fun in an activity, because when one is having fun, one is engaged; when engaged, one is very likely learning. A high

level of fun and engagement was observed throughout the studies and well-documented in the video tapes. Below are answers to the post-activity survey question, “Did you have fun using VFT?”, as well as a graph of their quantitative self-assessment:

- “I had fun, we played games and everything”
- “Yes, it was a fun experience with a lot of friends”
- “It was cool to take pictures of several ways. To manipulate the computers, exchange ideas with the teacher and peers. If I have another opportunity, I take it”
- “I created a play and saw how it is good to learn *VFT* “
- “I had more freedom using *VFT*”
- “It is dynamic and constructive; everything we do is useful”
- “It is very interesting how this tool works”

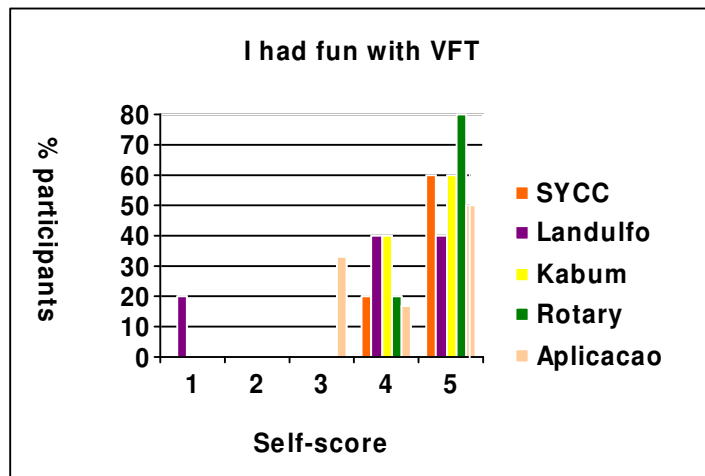


Figure 9.2: Fun using *VFT*

The participants valued the interactions and collaborations, the construction of the virtual play and the fun learning afforded by *VFT* process, which are all parts of constructionist learning.

The results on engagement with the tool varied somewhat from group to group and varied with the *VFT toolset*'s state. The first study yielded some distractions, because the *VFT*

toolset manifested bugs that obstructed creation of the digital play. Participants exhibited low interest in Dramatic Faces (DF) because the faces were 2D and “cartoon”. The second version of *VFT* drew high interest from the participants, reflecting better features of the tool, but despite a much better version of DF that was 3D, it did not serve the desires of the participants well. None of the groups in Brazil seemed interested in using their faces as caricatures; they want to see very realistic emotions, but even the final 3-D version of Dramatic Faces did not allow depiction of realistic emotions very easily and the participants did not engage with it.

The success of *VFT* as a toolset relies on the fact that the virtual plays are authentic and use stories of the community to which the participants belong, thus encouraging problem ownership and visceral engagement when trying to solve issues presented by the virtual plays.

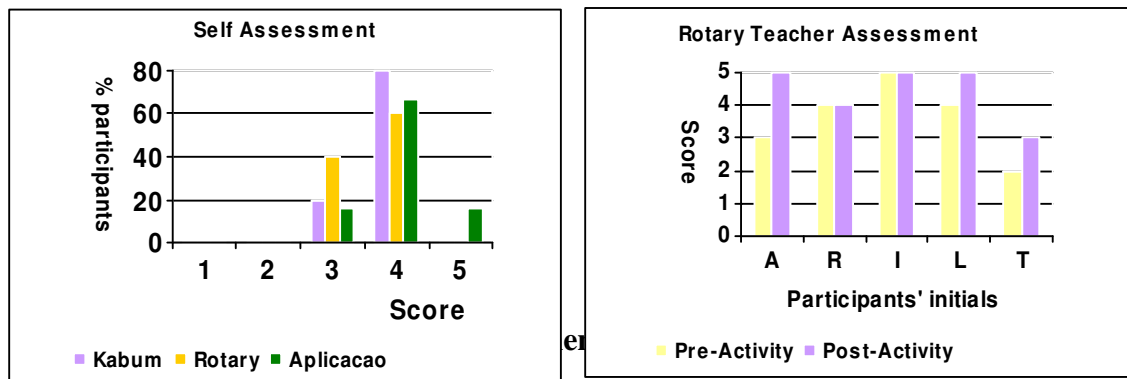
9.5 Argumentation Style

My observations, the teachers’ assessments and the participants’ self-assessments agreed on enhancement of argumentation skills for some participants. The ones who joined the study with good argumentation abilities showed no change in ability, but even the ones in whom I noticed only a slight change claimed to have improved their argumentation style. Below are some of their answers to the question of the post-activity survey, “How did *VFT* help you to improve your ability to argue about your ideas?”:

- “Because this project decreased my **shyness**, so I can talk more in front of several people”

- “Because before when there was a fight, I would meddle in; but now I speak calmly”
- “If we know how to use the words, we manage to convince people that we are right”
- “The dialogue among each other”
- “I learned to reason first in order not to take the wrong decision”
- “VFT helped me, because it showed me several ways to **solve** problems”

Students’ and teachers’ assessments are showed in the graph below. I report on the results for Rotary, because this was the only group where one teacher answered the survey for all participants. I only surveyed improvement of argumentation style during my last study:



9.6 Expressive Fluency

Participants believed strongly that they could express themselves better at the end of the study. It seems that performing, creating a virtual play and discussing several paths of actions were a transforming experience to them. Given the appearance of words such as “problems” and “conflicts” in their responses, it looks like they equated the experience as learning how to better express themselves in situations of conflict:

- “I learned that I can’t be shy in all occasions and I need to leave the shyness aside. It made a huge difference for me to leave my shyness aside.”
- “It [the workshop] better showed me the **problems** that I did not know how to resolve”
- “From now on, I will look for more **solutions**”
- “Because now I know more about the computer”
- “Because we performed several situations where we had **conflicts** to resolve, we worked a lot with communication between ourselves and with **conflicts** that might happen in the future”
- “Because I learned different ways to express myself better with this virtual way”

The quantitative data also shows improvement in expressive fluency for most of the participants:

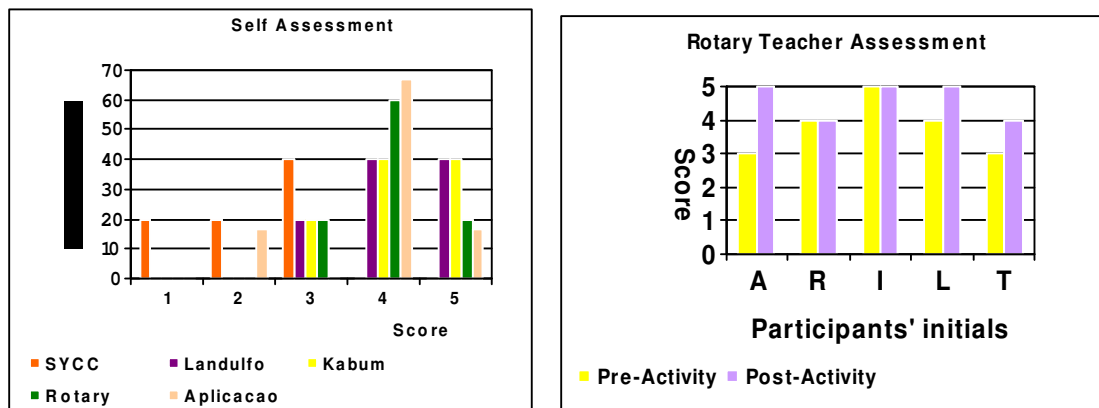


Figure 9.4: Expressive Fluency

In this study, overcoming shyness was directly associated with enhancing expressive fluency. The cases of Adroaldo, Lucia and Tania were the most striking ones, but there were other participants who also showed some changes. The activities introduced by the *VFT* toolset (such as line recording and the debate around synchronizing images with sound track) complemented the *VFT* process of dramatization. The lack of audience

allowed by the *VFT* process and toolset was extremely important in not having to deal with stage fright. In their own words: “More people can see it and you don’t have people watching you while you do it”. Several participants considered “overcoming shyness” the best contribution of the workshop as seen in some of their quotes in the previous sections.

The *VFT toolset* was built upon the premise that DIE and *Theater-in-Education* (TIE) improves children’s abilities to express themselves (Ward, 1981; Brestoff, 1995; McCaslin, 1996; Jorgensen, 2000). Boal’s *TO* (1984) makes the case that *Forum Theater* (*FT*) allows the rehearsal of situations where change is desired. Some *TO* practitioners (Shutzman & Cohen-Cruz, 1994) believe and work with the premise that *FT* facilitates learning of conflict resolution during this process. My studies instead demonstrated that *VFT* supports – for some participants – improvement of expressive fluency and argumentative skills.

VFT exploits children’s and youths’ passion for technology in order to attract them to drama, which directly deals with the improvement of their artistic and language expression skills. In that sense, I believe that the *VFT process* and *toolset* were successful and if the tool can be improved further, it will be a hit for pre-teens and teens, especially ones who have a need to develop argumentation and expressive fluency skills.

9.7 Dramatic Expression

Dramatic fluency is part of expressive fluency. The *VFT toolset* augmented practice of rehearsals, improvisation skills, and voice intonation. The rehearsals that were part of line recording allowed the participants a chance to practice dramatization, voice and

emotions, even though only voice dramatization matters for this activity. Their improvisation skills were put to the test during all of the process. The influence of *Drama-in-Education* and *Theater of the Oppressed* games were also important in the enhancement of their dramatic fluency.

All the virtual plays created by the participants in this research were a simulation of real life situations, but as children and youth take the role of different persona such as grown-ups, teachers, sales person, security guard, etc, they tend to get into pretend-mode. This is a natural process of making drama, but was also related to their degree of theater/drama experience. Aplicação group enjoyed to make caricatures of their personas and exaggerated on the emotions to turn a drastic situation into a comic one. This shows evidence of pretense play even in the settings of real life conflicts. In some cases, the children or youth were dramatizing as well as modeling real-life experiences.

According to the post-activity survey more than half of the participants claimed to have learned about drama:

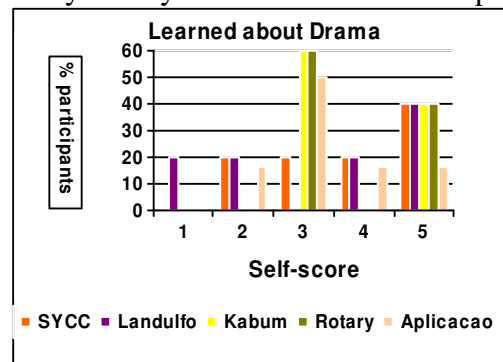


Figure 9.5: Dramatic Expression

Some of the participants indicated that they joined the workshop because they were interested (hooked by) in the technological side of it. The fact that these same participants

did not engage well at first in the dramatic games, but increasingly engaged (as the work progressed) with the pretend play games and improvisations, demonstrated that they not only become involved with dramatic activities through the technology (see section 8.2 in Chapter 8), but also enhanced their dramatic skills. This research is one example of technology serving as an entry point into the dramatic arts.

9.8 Social Awareness

VFT toolset is an open-ended learning environment that supports the development of any kind of virtual play. The open-endedness of the toolset was absolutely required, because the youth varied greatly in their personal understanding of social issues. I initially wanted to explore issues of social oppression with the participants, but their responses varied with their level of cognitive development and social consciousness. When I introduced brainstorming about personal or community stories of oppression to the groups, their interpretations of “oppression” were of unfair, unjust, or disrespectful situations, and even of depression (see section 7.9, section 8.8.4).

The *VFT* process, toolset and performance also contributed to an increase of social awareness, as shown by the increased level of discussions and responses to the conflicts depicted in the three virtual plays created in the third study. We first worked on personal issues, scaling up toward social conflicts. The eleven-year-olds focused on an immediate conflict that impacted their personal and daily life, such as amount of trash in their house yard and noise made by a next-door neighbor. From there, discussions evolved on how this is a problem faced by everyone in the city.

Even though at first the Rotary group could not initially express examples of social oppression, they understood the conflicts of group and racial discrimination portrayed by the other groups' virtual plays, which they could also perceive to be present in their daily lives. They had to face the authority of a teacher and of a security guard during improvisations when creating the virtual play response. Clearly the personal oppression was more within their reach and less abstract than the impersonal, authority-driven oppression. It seems that their awareness increased due to moving back and forth from personal to social issues, expanding their awareness of social problems and possible solutions (Excerpts # 3, 7, 8, 11, 12, 14, and 15 in Chapter 8).

There might be an issue with the meaning of the word oppression and with its symbolism for children in different cultures. Oppression (*opressão* in Portuguese) or oppressed (*oprimido* in Portuguese) seems to be used more in political discourse of adults. Even though the teenagers seemed to understand the meaning of the word, they could not easily visualize situations of oppression in their lives or communities, but they could visualize unjust situations. While injustice (*injustiça* in Portuguese) is not necessary oppression, it brings a connotation of conflict and situations that need to be resolved in order for the injustice to be addressed.

Participants' views of oppression and injustice varied with their age and maturity. The first stories from the Kabum group were all sad ones; they seemed not to know the word oppression and confused it with depression (*depressão* in Portuguese); therefore I asked

them to think about situations of injustice. Only then, they came up with stories of teacher or peers being unfair to them. Moving from personal stories to community ones, they created the dramatic piece about disrespectful neighbors. The Landulfo Alves group (2nd study) also had a difficult time coming up with stories of oppression, either personal or social. Their initial stories were also of personal cases of injustice or disrespect, which later translated into the social issues of the bus pass, which they saw as an injustice to the students from public schools. Aplicação was the only group who tackled issues of oppression from the beginning; it seems that their political level of awareness was ahead of that of the other groups.

In a personal conversation after the famous Papert/Freire debate, Papert said he had asked Freire "If you had to rewrite the Pedagogy of Oppressed after so many years what would you do differently" to which Freire responded: "now that I am older, I would re-write pretty much the same book, but with a more EXPERIENTIAL rather than IDEOLOGICAL language" [personal communication, Seymour Papert to Edith Ackermann, 11/1994]. This answer corroborates on how oppression for the participants was viewed more as a personal experience rather than political or ideological one. This research shows the importance to use digital theater as a vehicle to expand social awareness moving from experiential oppression to a political or social one.

9.9 Facilitator's Role

Through the participants' responses and my observations during the activities, it was clear that the facilitator's role was crucial in bringing them further in their reasoning. I

interacted with the youth as facilitator in several ways, including asking for clarification on their responses, asking the right questions at the right time, and stimulating the participants to expand upon their ideas and responses. The presence of the facilitator mediating the activities, asking questions to clarify the participants' responses and to help them to expand their ideas seems to be an important factor in the improvement of their argumentation and expression abilities. At this moment there is little evidence that *VFT* as a tool alone could yield improvement in the learning goals without a facilitator with expertise in *Theater of the Oppressed (TO)* and *Drama-in-Education (DIE)*.

9.10 An Object to “enact with” and “argue about”

The participants used the *VFT toolset* to record the character lines and create their digital play; therefore enacting with it by reconstructing the way they move, act, and talk during improvisations into the digital environment. *VFT* is different from a video camera that can only be used to tape an enactment. If they are not satisfied with full motion video, they have to enact the whole scene again. If they are not satisfied with a *VFT* sequence, they can modify it with the help of the tool and computer without having to enact the whole sequence again. The tool provides a level of interaction and reflection that the video camera can not provide.

After watching a digital performance, they argued about the virtual play among themselves, and later among groups either on-line or face-to-face. The *VFT performance* was an “object to argue about”. This process can be seen throughout chapter 8 and

demonstrates how the constructionist philosophy of learning was well incorporated into this research.

9.11 Relationship to Design-Based Research

The three studies utilized DBR as a methodology of inquiry, and involved the same protocol of working with the participants, except that the first study was purely qualitative. The populations were also similar in terms of class (lower-middle class), but the culture of the first study was different from the last two studies (American and Brazilian immigrant students in the USA versus Brazilian students in Brazil).

DBR fitted well with these studies, because the design of the tool informed the learning activities, while the participants' reactions and enhancements (or not) of their learning skills gave feedback on the redesign of the tool. Designing the learning environment as a whole (face-to-face and computer's interactions) was always dependent upon the acceptance and reactions demonstrated by the participants.

The pilot study was very important in defining *VFT toolset* interface. Studying how the children used the prototype gave me enough feedback and ideas on how to improve it. It also informed the design of the learning environment (*VFT process*) for future studies. The second study validated the interface, informed the planning of the *VFT process*, and suggested the research methods and strategies for the last study. The third study informed future research as well as future development of the *VFT toolset*, demonstrating the importance of the cyclical process of DBR.

The main differences between the three studies included different ways of fine-tuning of each session's activities. Even though the protocol of activities was the same for the last two studies, each group was different and I was very flexible on the pace of work and in handling their desires. For example, in the last study, the group of children typed slowly and needed closer supervision and help with the tool. One group liked to sit in a circle and discuss alternative actions, while the other group liked to act out their alternatives.

9.12 The Virtual Joker

The idea to create *VFT* was inspired initially by *Forum Theater (FT)*, but as the development of the tool progressed and the first two studies were carried out, I observed a growing difference between the two. Superficial differences include whether there is a joker or not, but the goals of the two processes also differ. *FT* has *theater performance* as a goal, even if not a finished one, a performance piece that evokes “spect-actor” reaction live and on stage. *VFT* is concerned with a digital play that is a static piece of media, though this sparks discussions and leaves room for digital interventions, but as an educational endeavor concentrates instead on eliciting learning skills during play creation and discussions.

Although *VFT* started as a potential extension of *FT* on-line, these studies show that it functions more as a tool for learning in line with Freire's idea of liberation. *FT* focuses on social change and relates indirectly to education, while *VFT* focuses on education and relates indirectly to social change. Even though *VFT* can potentially allow experiences like *FT* in the virtual world, there are intrinsic differences enforced by digital media such

as the nature of the virtual intervention (Chapter 3, page 4). *VFT* is a form of virtual theater (Chapter 3, page 10), and as its name suggests a forum of debate ruled by virtual actions.

Boal's *Forum Theater* requires the presence of a joker during its presentation. The joker role is to manage the interactions between "spect-actors" and actors and to make sure that the solutions introduced by the interventions make sense (Chapter 2, page 17) and the conflicts are not trivialized. Given the role of technology within *VFT*, the joker as a physical person is absent during playback of a virtual play, so intervention frames instead announce the moments of crisis.

In *VFT*, intervention frames are created by the playwrights and can be modified by whoever responds to them; therefore the youth can be considered "virtual jokers" as they set up the virtual scenes and manage the invariants of the virtual conflict; furthermore once discussing the virtual play through a web-chat, the youth would be responsible for reflecting and debating on the issues presented by the interruption frames; therefore picking up the role of the Boal's joker, who mediates the audience's interventions during the play presentation.

Observing the participants while they watched each other virtual plays, the intervention frames did in fact work as a "virtual joker", highlighting the moments of crisis and posing specific questions to which participants should respond (see section 8.8.2 in page 34, 8.8.4 in page 42, and 8.8.6 in page 49). The participants were able to portray the

situations of conflict through the intervention frames, giving opportunities to the “virtual spect-actors” to analyze possible paths of change.

For example, the Aplicação group did not create three intervention frames as they planned; they forgot to create the intervention frame for the last conflict of discrimination against the customer who appeared unable to buy anything in the boutique. I noticed that both Rotary and Kabum groups did not discuss that third issue and were actually puzzled on why the saleswoman discriminated against that last customer. They were ready to tackle the issues of gender and public school student discriminations that were emphasized by the “virtual joker” (intervention frames) but – in the absence of such a frame – the last issue was not discussed.

VFT was not tested in the absence of a facilitator/mediator, but I envisioned that if a group of pre-teens or teens got together to create a virtual play by themselves, they could also accomplish it without the role of an adult facilitator. Using *VFT* and on-line chat, these youth could also collaborate through interventions made asynchronously (creating offline versions of the virtual play) or synchronously through chatting (without acting out the conflict) by themselves.

When Rotary and Kabum met on-line and I did not get involved in their chat, their discussion was shallow (see Excerpt 13 in section 8.8.7); therefore I believe it is necessary to have a facilitator/mediator as the “virtual joker” during the on-line debates if the goal is to encourage insightful and thoughtful discussions.

The “virtual joker” could be an adult facilitator who monitors on-line discussions, or could also be the youth themselves interacting on-line while trying to come up with a democratic solution. Because of the lack of or extremely slow Internet connectivity during this study, there is not enough data to demonstrate that the “virtual joker” can be a role taken by the youth themselves during on-line debates.

9.13 Lessons Learned

The most important learning lesson to me was that it is easy to engage children and youth in deep and thoughtful learning when they care about the subject matter, take ownership of the process, and can create a meaningful object “to argument about” or “to act upon.” I have had the opportunity to put in practice Papert’s constructionism and Freire’s educational theory for liberation. It was rewarding to verify how much drama can foster expression abilities, and how *VFT* enabled an entry point into dramatic arts, especially for the children who would not have chosen to do drama otherwise, but who were interested in the technology aspect of the activity.

9.14 Open Questions

Before I started this research I believed that youth could run the show by themselves; i.e. they could not only create a play by themselves, but also interact on-line by themselves until they come up with an engaging digital play, while resolving the issues presented by the virtual plays. I still think this is possible, but now I question how much their argumentation skills would be improved without a more experienced person to encourage them to go a step further in their reasoning and debates and to make sure they will

respond thoughtfully to the intervention frames. If there is no expectation about improving argumentation style, could *VFT toolset* be considered a virtual game? Would that be the fine line between *VFT* being used as an educational tool or as a virtual game?

The population targeted in these studies could not express themselves easily (except for *Aplicação*); their ideas and arguments were somewhat brief and repetitive. Questioning them after each incomplete sentence or idea was one motivation to deepen their arguments. How could the participants have gone deeper in their reflection without a facilitator? Could the activities be constructed so a facilitator is less essential?

The ideal setting for this research was to have two participants sharing a personal computer and having the group share the creation of the digital play (each pair would put together a few sequences of a given scene). That means that the participants would have had more exposure to *VFT toolset*. Would an increase of time manipulating the *VFT toolset* affect the enhancement of expressive fluency?

For a group to use the *VFT toolset* without any mentoring implies that the *VFT process* would be carried out in a different way. A set of creative activities (dramatic exercises) would exist or not, depending on the level of expertise of peers within the group. The *VFT performance* would happen and would probably generate response and engagement. Would the results for argumentation style and expressive fluency be different for this group? Would their discussions and improvisations of their digital play spark deep discussions?

How would VFT engage a computer-savvy population? Would VFT be useful to them?

Even though there was no case of participants being shy while being videotaped in these studies that might be the case for some children. Would taking static pictures (or drawing cartoons) and recording the lines separately be a better solution for extremely shy students?

The participants did not want to take Dramatic Faces (DF) beyond the personal level; they did not want to use DF as abstracted images of themselves. There has to be a way to make students understand the purpose of DF. Would they engage better with DF if the facilitator elicits the importance of make-believe instead of emphasizing that their digital play should be about real situations?

9.15 Future Work

In order to move forward with this research it is necessary to improve Dramatic Faces (DF), so that children can create realistic emotions easier. The children's desire to have their own images in the play was surprising; the anonymity that the current DF provides turned out to be unneeded and even undesirable. The evidence shows that a simple "picture-taking" mode for dramatic faces might work out better than an electronic manipulation tool, even though children and youth could become convinced about the value of creating cartoon-like faces.

Several changes to the *VFT toolset* are indicated. Memory usage and speed were overarching problems. It is necessary find ways to optimize classes and methods, so that the toolset runs somewhat faster. The protocol that I used for communication between client and server needs to be revised to make sure that sending large wave files does not make the connection drop.

The future of this research depends on porting *VFT* to a password protected web-site instead of installing client versions of it. Once in a protected server, anyone who knows about *VFT* can access the site, create a new user account and have access to the tool. Each person who creates a play should provide an e-mail address to enable others to contact them. This would make *VFT* a groundbreaking tool for allowing the on-line collaboration within any school, community center, or non-profit organization working with disadvantaged youth, as well as anyone who would like to participate in the *Virtual Forum Theater* network connecting youth from diverse backgrounds.

VFT plays could be explored further by the youth in longer research. Virtual plays could be modified by several groups, creating a chain series of digital plays. Each change of a virtual play would be saved and any person could see any given version of it; therefore one could view the whole history of solutions given to the conflict. Each version could be the beginning of another story, depending on how the children modify it. All these virtual plays that refer to the same starting theme would be saved in a library and provide resources to learn from. This feature already exists in the actual version of *VFT toolset*,

but there was no time to foster that kind of collaboration, which should also involve more groups.

Once *VFT* is a web-based learning environment, new research can be designed to explore on-line collaborations through web-chatting and exchange of virtual plays. The goal of this research would include observing how a virtual play is modified, generating discussions through action (several versions of the same play), or through on-line discussions.

As the prices of palmtops and digital phones go down, it is possible to port *VFT* to these kind of interfaces, which could allow both more remote collaboration and an easier interface to “picture taking” modes and “recording” modes. The more available *VFT* becomes, the more the chances for it to be used as a tool for artistic expression and conflict resolution.

I am very interested to know if *VFT* would give similar results if the teenagers work alone as a group without a facilitator, and would like to set up a research to study *VFT* without a facilitator. I would like to put together a group of eight to ten teenagers in a room with five computers connected to the Internet. I would run one session with them, explain how to use *VFT toolset*, and ask them to create a digital play portraying an issue of injustice or oppression that has happened with them or within their community. I would give them about fifteen sessions of two hours to have their digital play saved at the *VFT* website. I would ask them to interact with another digital play allowing a few

interactions to occur for one given play. Comparing the results of this “non-facilitated” work with the facilitated studies would give some understanding of whether the facilitator is necessary.

Another area of research that I would like to explore is *VFT* as a *Positive Technology Development* (PTD) environment. The *VFT toolset* would certainly increase *communication* between youth communities through discussion of their virtual play. *Conduct* might depend on adult mentoring, but it would probably show up in the virtual plays. Every time a conflict is solved it demands an action which would translate in a way to conduct one’s self. See chapter 4 for an analysis of how the other four C’s relate to *VFT*. A new study following Bers’s guidelines would be necessary to test the hypothesis that *VFT* is a kind of *PTD* environment.

Youth from low-income classes have less mobility, given the lack of money for transportation and less access to theaters. At least in Brazil, one can not find theaters in poor neighborhoods, unless the neighborhood has a certain critical degree of cultural consciousness and community organization, but this is not common. Introducing virtual theater in these technological communities’ centers would be a gain for these youth, as shown by these preliminary studies.

References

- Ackermann, E. (1991). The Agency model of transaction. In I. Harel & S. Papert (Eds.) *Constructionism*. Norwood, NJ: Ablex Publishing Company, pp 367-379.
- Ackermann, E. (1999). Ref: In (1999) Learning Sites: Social and technological Contexts for learning (Bliss, Light, & Saljo, Eds.) Elsevier: *Advances in Learning and Instruction*. Chap.11. pp. 144-154.
- Ackermann, E. (2001). Piaget's Constructivism, Papert's Constructionism: What's the difference? Retrieved December 20, 2002, from <http://learning.media.mit.edu/publications.html>
- Ackermann, E. (2004). Constructing Knowledge and Transforming the World. In *A learning zone of one's own: Sharing representations and flow in collaborative learning environments* [M. Tokoro and L.Steels (Eds.). Amsterdam, Berlin, Oxford, Tokyo, Washington, DC. IOS Press, 2004. Part 1. Chapt 2. pp. 15-37.
http://web.media.mit.edu/~edith/publications/2004-Constructing_Knowledge.pdf
- Anderson, M. (2005). New Stages: Challenges for Teaching the Aesthetics of Drama Online. *Journal of Aesthetic Education*, Vol. 39, No. 4, Winter 2005
- Anderson, R. C., Chinn, C., Chang, J., Waggoner, M., & Yi, H. (1997). On the logical integrity of children's arguments. *Cognition and Instruction*, 15(2), 135–167.
- Anderson, R. C., Nguyen-Jahiel, K., McNurlen, B., Archodidou, A., Kim, S., Reznitskaya, A., Tillmanns, M., & Gilbert, L. (2001). The snowball phenomenon: Spread of ways of talking and ways of thinking across groups of children. *Cognition and Instruction*, 19(1), 1–46. (stories - persuasion)
- Andriessen, J. E. B., Baker, M., & Suthers, D. (Eds.) (2003). *Arguing to learn. Confronting cognitions in computer-supported collaborative learning environments*. Dordrecht: Kluwer.
- Barab, S. (2004). Design-Based Research: Clarifying the Terms. *Journal of the Learning Sciences*, 13(1). Lawrence Erlbaum Associates, Inc.
- Bates, J. (1992). The Nature of Characters in Interactive Worlds and The Oz Project, *Tech. Report CMU-CS-92-200*, School of Computer Science, Carnegie Mellon University, Pittsburgh, Oct. 1992.
- Bell, P. (2004). Promoting disciplinary-sensitive argumentation across history and science in the elementary school classroom. In Y. B. Kafai, W. A. Sandoval, N. Enyedy, A. S. Nixon, & F. Herrera (Eds.), *Embracing Diversity in the Learning Sciences*.

Proceedings of the International Conference of the Learning Sciences. Mahwah, NJ: Erlbaum.

Benoit, P. (1984). Extended argument in children's discourse. *Journal of the American Forensics Association*, 20, 72-89.

Bers, M. (1999). Identity Construction Environments: developing personal and moral values through the design of a virtual city. *The Journal of the Learning Sciences*. Vol. 10 N 4. NJ: Lawrence Erlbaum. pp 365-415.

Bers, M. (2001). Welcome to Zora. Retrieved December 20, 2002, from <http://xenia.media.mit.edu/~marinau/Zora>.

Bers, U.M. (2006). The Role of New Technologies to Foster Positive Youth Development. In *Applied Developmental Science*. Vol 10, No. 4, 200-219. Hillsdale, NJ: Lawrence Erlbaum Associates.

Bers, U.M. (2007). Positive Technology Development: Working with Computers, Children and the Internet. In *Math Psych, The Periodical of Massachusetts Psychological Association*, Vol 51(1). Pp 5-7, 18-19

Bettelheim, B. (1977). *The Uses of Enchantment*. New York: Vintage Books.

Bingenheimer, J.B., Brennan, R. T., Earls, F.J. (2005). Firearm Violence Exposure and Serious Violent Behavior. *Science* 27 May 2005: 1323-1326

Blatner, A. (1988). The Art of Play: An Adult's Guide to Reclaiming Imagination and Spontaneity. New York: *Human Science Press*.

Boal, A. (1974). *Teatro do Oprimido e outras poeticas politicas*. Rio de Janeiro: Civilizacao Brasileira (4th edition).

Boal, A. (1992). *Games for actors and non-actors*. London: Routledge.

Boal, A. (1994). She made her brother smile. In Schutzman, M. & Cohen-Cruz, J. (Eds.) *Playing Boal*. (pp.81-83). London and New York: Routledge.

Boal, A. (1995). *The Rainbow of Desire*. London and New York: Routledge.

Boal, A. (1998). *Legislative Theatre*. London and New York: Routledge.

Bolton, G. (1998). Acting in classroom drama: a critical analysis. In *Stoke-on-Trent*: Trentham.

Bordens, K. & Abbott, B. (1996). *Research design and methods: a process approach*. Mountain View, California : Mayfield Publisher Company.

- Brecht, B. (1964). *Brecht on Theatre. The development of an aesthetic*. New York: Hill and Wang.
- Brestoff, R. (1995). *The Great Acting Teachers and Their Methods*. Lyme, NH: Smith and Kraus.
- Brown, J.S., Collins, A., & Duguid, P. (1989). Situated knowledge and the culture of learning. *Educational Researcher*, 18 (1), 32-42.
- Brown, A.L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions. *Journal of the Learning Sciences*, 2, 141-178. Lawrence Erlbaum Associates, Inc.
- Bruckman, A. (1997). MOOSE Crossing: Construction, Community, and Learning in a Networked Virtual World for Kids Retrieved July 20, 2007 from <http://www.cc.gatech.edu/~asb/thesis/>
- Bruckman, A. (1998). Community Support for Constructionist Learning. *Computer Supported Cooperative Work* 7:47-86, 1998.
- Bruckman, A. (1999). *MooseCrossing*. Unpublished doctoral dissertation. Retrieved December 20, 2002, from <http://www.cc.gatech.edu/elc/moose-crossing>.
- Brushlinsky, A. V. (1989). Sergei Rubinstein: Founder of the activity approach in psychology. *Soviet Journal of Psychology*, 10, 24-42.
- Buarque L. L. et al (1992). Avaliação do desempenho da rede pública escolar do Estado de Pernambuco na área de linguagem. *Estudos em Avaliação Educacional*, São Paulo, v. 5.
- Burleson, B. R. (1980). The development of interpersonal reasoning: An analysis of message strategy justifications. *Journal of the American Forensic Association*, 17, 102-110.
- Burrill, D. A. (2005). Out of the Box: Performance, Drama, and Interactive Software. *Modern Drama*, 48:3 (Fall 2005) pp.492-512.
- Campbell, R. L. (1992). The programmer's burden: Developing expertise in computer programming. In J.R. Hoffman (Ed.), *The psychology of expertise: Cognitive research and empirical AI* (pp. 269-294). New York: Springer-Verlag.
- Cavallo, A. (2003). Researching and designing learning environments with internet technology. International Conference on Multimedia and ICTs in Education Badajoz-Spain, 2003 (<http://www.formatex.org/micte2003/acceptedabstracts.htm>).

Cavallo, A. and Couch, A. (2004). Virtual Forum Theater: a CSCL for underprivileged children. XXXI SEMISH - Integrated Seminar of Software and Hardware. Salvador, Brazil. August 2004. (<http://web.media.mit.edu/~mello/SEMISH2004.pdf>)

Cavallo, D., Blikstein, P., Sipitakiat, A., Basu, A., Camargo, A., Lopes, R., Cavallo, A (2004). The City that We Want: Generative Themes, Constructionist Technologies and School/Social Change. *International Workshop on Technology for Education in Developing Countries*, Joensuu, Finland, August, 2004. Retrieved August 2007 from <http://learning.media.mit.edu/publications/TEDC2004-cavallo.pdf>

Carey, S. (1987). *Conceptual Change in Childhood*. Cambridge, MA: MIT Press.

Carraher, T. N. (1986). Alfabetização e pobreza : três faces do problema. In: Kramer, S. (Ed.). *Alfabetização : dilemas da prática*. Rio de Janeiro : Dois Pontos Editora. p. 47-97.

Carraher, T. N, Carraher, D. W., Schiliemann, A. D. (1986). Cultura, escola, ideologia e cognição : continuando um debate. *Cadernos de Pesquisa*, São Paulo, v. 57, p. 78-85.

Carrol, J., Anderson, M., Cameron, D. (2006). *Real Players? Drama, Technology and Education*. Trentham Books.

Carvalho, M. E. P. & Ramalho, B. L. (1983). A Escola, a Família e o Fracasso Escolar. *Educação e Cultura*, 9 (III).

Children's Defense Fund. (1998). The state of America's children yearbook 1998. Washington, DC: Author.

Chinn, C. A. (2006). Learning to argue. In A. M. O'Donnell, C. Hmelo-Silver & G. Erkens (Eds.), *Collaborative learning, reasoning, and technology* (pp. 355-383). Mahwah, NJ: Erlbaum.

Chinn, C. A., & Anderson, R. C. (1998). The structure of discussions that promote reasoning. *Teachers College Record*, 100, 315-368.

Chinn, C. A., O'Donnell, A. M., & Jinks, T. S. (2000). The structure of discourse in collaborative learning. *Journal of Experimental Education*, 69, 77-97.

C&T. (2007). C & T itstandsformorethantheatre. Retrieved May 23, 2007, from <http://www.candt.org/index.php>

COEP Brasil (n.d.). Rede Nacional de Mobilizacao Social. Retrieved May, 28, 2007, from <http://www.coepbrasil.org.br/combate/index.asp>

Cohen-Cruz, J. (1994). Mainstream or Margin? US activist performance and Theatre of the Oppressed. In Schutzman, M. & Cohen-Cruz, J. (Eds.) *Playing Boal*. (pp.81-83). London and New York: Routledge.

- Collins, A., Joseph, D. & Bielaczysz, K. (2004). Design Research: Theoretical and Methodological Issues. *Journal of the Learning Sciences*, 13(1), 15-42. Lawrence Erlbaum Associates, Inc.
- Creswell, J. (2003). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. SAGE publications.
- Dewey, J. (1938). *Experience and Education*. New York: Collier Books.
- DiSessa, A. & Cobb, P. (2004). Ontological Innovation and the Role of Theory in Design Experiments. *Journal of the Learning Sciences*. 13(1). Lawrence Erlbaum Associates, Inc.
- Dow, S., Mateas M. et al (2007). Presence and Engagement in an Interactive Drama. *Computer Human Interaction*. Proceedings of Trust & Engagement. San Jose, California. April 2007.
- Driver, R., Newton, P., & Osborne, J. (2000). Establishing the norms of scientific argumentation in classrooms. *Science Education*, 84(3), 287-313.
- Duckworth, E. (1978). *The African Primary Science Program: an evaluation and extended thoughts*. University of North Dakota Press.
- Duckworth, E. (1987). *"The Having of Wonderful Ideas" and other essays on teaching and learning*. New York and London: Teachers College, Columbia University.
- Duncan, G. (1988). *Years of poverty, years of plenty*. Ann Arbor, MI: University of Michigan Press.
- Duncan, G. (1996). Income dynamics and health. *International Journal of Health Services*, 26, 419-444.
- Duncan, G., Brooks-Gunn, J., & Klebanov, P. (1994). Economic deprivation and early childhood development. *Child Development*, 65, 296-318.
- Duncan, G. & Brooks-Gunn, J. (Eds.). (1997). *Consequences of growing up poor*. New York: Russell Sage Foundation.
- Duncan, G., Brooks-Gunn, J., Yeung, W., & Smith, J. (1998). How much does childhood poverty affect the life chances of children? *American Sociological Review*, 63, 406-423.
- Dunham, P. (1988). *Research Methods in Psychology*. Harper & Row Publishers.
- Dunifon, R., Duncan, G. J., & Brooks-Gunn, J. (2001). As ye sweep, so shall ye reap. *American Economic Review*, 91(2), 150-154.

Dunifon, R., Duncan, G. J., & Brooks-Gunn, J. (2004). The long-term impact of parental organization and efficiency. In A. Kalil & T. DeLeire (Eds.) *Family investments in children's potential: Resources and parenting behaviors that promote success* (pp. 85-118). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Duschl, R. A., & Osborne, J. (2002). Supporting and promoting argumentation discourse in science education. *Studies in Science Education*, 38, 39-72.

Ekman, P. (1993). Facial Expression and Emotion. *American Psychologist*. 48(4):384-392, April 1993.

Ekman, P., Rosenberg, E. (1997). *What the face reveals: basic and applied studies of spontaneous expression using the facial action coding system (FACS)*. New York: Oxford University Press

Ekman, P. (1999). Basic Emotions. In T. Dalgleish and M. Power (Eds.). *Handbook of Cognition and Emotion*. Sussex, U.K.: John Wiley & Sons, Ltd., 1999.

Erikson, E. (1963). *Childhood and Society*. New York : W.W. Norton.

Espinheira, G. (2001). Sociabilidade e violência na vida cotidiana em Salvador. *Bahia Análise & Dados*. Salvador -Ba SEI v.11 n.1 p.8-16 Junho 2001

Façade (2005). Retrieved May 23, 2007 from www.interactivestory.net.

Farkas, G. (2000). Teaching Low-Income Children to Read at Grade Level. *Contemporary Sociology*, Vol. 29, No. 1, Utopian Visions: Engaged Sociologies for the 21st Century. (Jan., 2000), pp. 53-62.

Feldman, D. (1994). *Beyond Universals in Cognitive Development*. 2nd edition. Ablex Publishing. Westport, CT.

Felton, M., & Kuhn, D. (2001). The development of argumentative discourse skills. *Discourse Processes*, 32, 135–153.

Felton, M. (2004). The development of discourse strategies in adolescent argumentation. *Cognitive Development* 19, 35–52.

Fox-Keller, E. (1985). *Reflections on Gender and Science*. New Haven. Yale University Press.

Frasca, G. (2001). *Videogames of the Oppressed: videogames as a means for critical thinking and debate*. Retrieved July 25, 2007 from <http://www.ludology.org/articles/thesis/FrascaThesisVideogames.pdf>

- Freinet, C. (1969). *Pour l'école du peuple: Guide pratique pour l'organisation matérielle, technique et pédagogique de l'école populaire*. Francois Maspero, Paris.
- Freire, P. (1972). *Pedagogy of the Oppressed*. New York: Herder and Herder
- Freud, S. (1989). *Civilization and its discontents*. New York: W.W. Norton
- Fridja, N. (1986). *The Emotions*. Cambridge U. Press.
- Fridlund, A. & Duchaine, B. (1996). 'Facial Expressions of Emotion' and the Delusion of the Hermetic Self. In *The Emotions: Social, Cultural and Biological Dimensions*. Ed. By Harre, R. and Parrot, W. SAGE
- Fundacao Bradesco (n.d.). Retrieved August 23, 2007 from <http://www.fb.org.br/Institucional/NossasEscolas/Nordeste/Salvador>
- FutureLab (2007). Retrieved October 12, 2007 from <http://www.futurelab.org.uk/>
- Future of Learning Group (n.d.). Retrieved August, 23, 2007 from <http://learning.media.mit.edu/projects.html>
- Galperin, P. (1992). The problem of activity in soviet psychology. *Journal of Russian and East European Psychology*, 30, 37-59.
- Gardner, H. (1973). *The Arts and human development*. John Wiley & Sons, Inc.
- Gardner, H. (1978). *Developmental Psychology: an introduction*. Boston : Little, Brown.
- Glesne, C. (1999). *Becoming Qualitative Researchers: an introduction*. Addison Wesley Longman
- Gralewski, L., Campbell, N. et al (2004). Animation Statistical Synthesis of Facial Expressions for the Portrayal of Emotion. Proceedings of the 2nd *International Conference on Computer Graphics and Interactive Techniques in Australasia and South East Asia*.
- Greeno, J. G. (1989). Situations, mental model and generative knowledge. In D. Klahr & K. Kotovksy (Eds.). *Complex information processing: The impact of Herbert A. Simon* (pp 285-318). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Hart, B., & Risley, T. R. (1995). *Meaningful differences in the everyday experience of young American children*. Baltimore, MD: Brookes Publishing.
- Hartley, R. & Goldenson, R. (1975). *The Complete Book of Children's Play*. New York: Cromwell.
- Heathcote, Dorothy (1984). *Collected Writings on Education and Drama*. Illinois:

Northwestern University Press.

Hmelo-Silver, C. E. (2003). Analyzing collaborative knowledge construction: Multiple methods for integrated understanding. *Computers and Education*, 41, 397-420

Historia do Brasil.net. (2005). Retrieved July 25, 2007 from <http://www.historiado brasil.net/ditadura/>

Hitchcock, David; McBurney, Peter and Parsons, Simon 'A Framework for Deliberation Dialogues', *Argument and Its Applications: Proceedings of the Fourth Biennial Conference of the Ontario Society for the Study of Argumentation (OSSA 2001)*, eds H. V. Hansen, C. W. Tindale, J. A. Blair and R. H. Johnson, 2001. <http://www.csc.liv.ac.uk/~peter/>

Huizinga, J. (1955). *Homo Ludens: A Study of the Play Element in Culture*. Boston: Beacon Press.

Infinite Realities. (2003). Retrieved April, 3 2004, from <http://www.infinite-realities.com/>

Jennings, N. R., Panzarasa P., Norman T.J. (2002). Formalizing collaborative decision-making and practical reasoning in multi-agent systems. *J. Logic Comput*; 12:55-117.

Jorgensen, L. (2000). *Boal and youth theatre in the United States*. Unpublished doctoral dissertation in Drama, Tufts University. September 2000.

Kegan, R. (1982). *The evolving self: problem and process in human development*. Cambridge, MA: Harvard University Press.

Kemmis, S., & Wilkinson, M. (1998). Participatory action research and the study of practice. In B. Atweh, S. Kemmis, & P. Weeks (Eds.), *Action research in practice: Partnership for social justice in education* (pp. 21-36). New York: Routledge.

Koschmann, T. (1994). Toward a theory of computer support for collaborative learning. *The Journal of the Learning Sciences*, 3. 219-225.

Koschmann, T. (1996). Paradigm shifts and instructional technology. In T. Koschmann (Ed.), *CSCL: Theory and practice of an emerging paradigm* (pp. 1-23). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Koschmann, Timothy, Ed. (1996). *CSCL: Theory and Practice*. Mahwah, NJ, Lawrence Erlbaum.

Kozol, J. (2002) Social Equality. Retrieved Jul, 10th 2007 from <http://www.learntoquestion.com/seevak/groups/2002/sites/kozol/Seevak02/html/se-open-2.htm>

- Kozol, J. (2002). Educational Advocacy. Retrieved Jul, 10th 2007 from <http://www.learntoquestion.com/seevak/groups/2002/sites/kozol/Seevak02/html/edad-open.htm>
- Kuhn, D., Shaw, V., & Felton, M. (1997). Effects of dyadic interaction on argumentive reasoning. *Cognition and Instruction*, 15, 287–315.
- Kuhn, D. & Udell, W. (2003). The development of argument skills. *Child Development*, 74(5), 1245-1260.
- Kuhn, D., & Franklin, S. (2006). The second decade: What develops (and how). In D. Kuhn, & R. S. Siegler (Eds.). *Cognition, Perception, and Language*. Volume 2 of *Handbook of Child Psychology* (6th ed.) (pp. 952-993). Editors-in-chief: W. Damon & R. M. Lerner. Hoboken, NJ: Wiley.
- Lao, J., & Kuhn, D. (2002). Cognitive engagement and attitude development. *Cognitive Development*, 17, 1203–1217.
- Lave, J. & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Leont'ev (1974). The problem of activity in psychology. *Soviet Psychology*, 13, 4-33.
- Lerner, R.M. (2002). *Concepts and theories of human development*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Lerner, R. M., Lerner, J.V., Alermigi, J., Theokas, C., Phelps, E., Gestsdottir, S., Naudeau, S., Jelic, H., Alberts, A.E., Ma, L., Smith, L.M., Bobek, D.L., Richman-Raphael, D., Simpson, L., Christiansen, E.D., & von Eye, A. (2005). Positive youth development, participation in community youth development programs, and community contributions of fifth grade adolescents: Findings from the first wave of the 4-H Study of Positive Youth Development. *Journal of Early Adolescence*, 25(1), 17-71
- Lincoln, Y.S., & Guba, E.G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.). *Handbook of qualitative research* (2nd ed., pp. 163-188). Thousand Oaks, CA: Sage.
- Lins e Silva, M. E. & Spinillo, A. G. (1998). Uma análise comparativa da escrita de histórias pelos alunos de escolas públicas e particulares. *Revista Brasileira de Estudos Pedagógicos*, Brasília 79(193), 5-16.
- Lins e Silva, M. E., Batista, A. A. G. (2005). Família e participação na cultura escrita em memórias de professoras. In: *XVII Encontro de Pesquisa Educacional do Norte Nordeste*, 2005, Belém.

Machado, I., Prada, R., & Paiva, A. (2000) TEATRIX: Virtual Environment for Story Creation. In G. Gauthier, C. Frasson, K. VanLehn (eds.), *Proceedings of the 5th International Conference on Intelligent Tutoring Systems (ITS 2000)*, 464-473, Montreal.

Machado, I., Paiva, A., Brna, P. (2001). Real characters in virtual stories. *Proceedings of International Conference on Virtual. Storytelling - ICVS*, Avignon, France. pp 127-134.

Machado, I, Paiva, A, Prada, R. [Is the wolf angry or... just hungry?](#) (2001B). *Proceedings of the fifth International Conference on Autonomous Agents AGENTS '01*
Publisher: ACM Press

Marsella, S., Johnson, W. & LaBore, C. (2000). Interactive pedagogical drama. *Proceedings of the 4th international conference on Autonomous agents. ACM Press* New York, NY, USA

Mattingly, C. & Gillette, N. (1991). Anthropology, Occupational Therapy, and Action Research. *The American Journal of Occupational Therapy*, 45(11), 972-978.

Maxwell, J. (1996). *Qualitative Research Design: an interactive approach*. Thousand Oaks, California: Sage Publications, Inc.

McBurney, P., Hitchcock, D., Parsons, S. [2007]: [The eightfold way of deliberation dialogue](#). *International Journal of Intelligent Systems*, 22 (1): 95—132.

McCaslin, N. (1996). *Creative Drama in the Classroom and Beyond*, 6th Ed. Longman Publishers USA.

Miles, M. & Huberman A. (1994). *Qualitative Data Analysis*. Beverly Hills, CA: Sage Publications.

Moreira, N. da C. R. (1992). Portadores de texto : concepções de crianças quanto a atributos, funções e conteúdo. In: Kato, M. A. (Org.). *A concepção da escrita pela criança*. Campinas : Pontes, p. 15-22.

National Center for Education Statistics. (2002). Children's reading and mathematics achievement in kindergarten and first grade. Washington, DC: U.S. Gove

Obeidallah D, Brennan RT, Brooks-Gunn J, Earls F. (2004). Links between pubertal timing and neighborhood contexts: implications for girls' violent behavior. *Journal of American Acad Child Adolescent Psychiatry*. 2004 Dec; 43(12):1460-8.

Oliveira, N. et al. (2000). *A OUTRA FACE DA MOEDA. Violência na Bahia*. Comissão de Justiça e Paz da Arquidiocese de Salvador, Gráfica Envelope e Cia. Salvador-Ba-Brasil.

Oliveira, E. and Sarmiento, L. (2003). Emotional Advantage for Adaptability and Autonomy. ACM

Papert, S. (1980). *Mindstorms. Children, computers and powerful ideas*. New York: Basic Books.1993 2nd edition

Papert, S. (1990) Introduction to Constructionist Learning. Cambridge,MA: MIT Media Lab S.Papert. Situating constructionism. In I.Harel and S.Papert,editors,*Constructionism*. Ablex Publishing, 1991.

Papert, S. (1996). *The Connected Family. Bridging the Digital Generation Gap*. Atlanta, Georgia: LONGSTREET Press.

Parsons, S., Sierra C., Jennings, N.R. (1998). Agents that reason and negotiate by arguing. *Logic Comput*; 8:261-292.

Patterson, C. J., Kupersmidt, J. B., & Vaden, N. A. (1990). Income level, gender, ethnicity, and household composition as predictors of children's school-based competence. *Child Development*, 61, 485-494.

Perkins, D. N. (1989) Reasoning as it is and as it could be: An empirical perspective, in D. M. Topping, D. C. Crowell, & V.N. Kobayashi (Eds.), *Thinking across Cultures: the third international conference on thinking* (175-194). Hillsdale, NJ: Erlbaum.

Phillips, D. C., & Burbules, N. C. (2000). *Postpositivism and Education Research*. Lanham, MD: Rowman & Littlefield.

Phillips, M., Brooks-Gunn, J., Duncan, G., Klebanov, P. and Crane, J. (1998). Family Background, Parenting Practices, and the Black-White Test Score Gap, in Christopher Jencks and Meredith Phillips, eds., *The black-white test score gap*. Washington, DC: Brookings Institute, 1998, pp. 103-45.

Piaget, J. (1977). *The Essential Piaget*. New York: Basic Books, Inc.

Pinhanez, C. (1998). It/I": A theater play featuring an autonomous computer graphics character. Proceedings of *ACM Multimedia'98 Workshop on Technologies for Interactive Movies*, Bristol, September 1998.

Planalp, S. (1999). *Communicating Emotion: Social, Moral and Cultural Processes*. Cambridge University Press.

Portney, K., Cohen, S., Goldman, J. & Soraci, S (1999). From Analog to digital: Teaching about criminal sentencing with technology, in David G. Brown, ed. *Computer Enhanced Learning: Vignettes of Best Practice from America's Most Wired Campuses*. WakeForest University Press - Scientific Division, forthcoming, Summer 1999.
http://ase.tufts.edu/polsci/fac_staf/kportney/fromanalog.pdf

Prada, R., Machado, I. & Paiva, A. (2000) TEATRIX: Virtual Environment for Story Creation. In G. Gauthier, C. Frasson, K. VanLehn (eds.), *Proceedings of the 5th International Conference on Intelligent Tutoring Systems (ITS 2000)*, 464-473, Montreal, June 2000: Springer.

Psychiatric News (2005). Witnessing Violence Makes Youth More Violence Prone. Retrieved on May, 31, 2007 from <http://pn.psychiatryonline.org/cgi/content/full/40/13/28>.

Quéau, P. (1986) *Eloge de la Simulation*. Seyssel, FR: *Collection Milieux. Edition du Champ Vallon*.

Rauh, V. A., Parker, F. L., Garfinkel, R. S., Perry, J., & Andrews, H. F. (2003). Biological, social, and community influences on third-grade reading levels of minority head start children: A multilevel approach. *Journal of Community Psychology*, 31, 255–278.

Rego, L. L. B. (1986). A escrita de estórias por crianças : as implicações pedagógicas do uso de um registro lingüístico. *Revista de Documentação de Estudos em Lingüística Teórica e Aplicada*, v. 2, n. 2, p. 165-180.

Rego, L. L. B., Dubeux, M. H. (1994). Resultados de uma intervenção pedagógica no pré-escolar e no primeiro grau menor. In: Buarque, L. L., Rego, L. L. B. (Org.). *Alfabetização e construtivismo : teoria e prática*. Recife : Editora Universitária da UFPe, p. 66-78. (Série Estudos Universitários).

Reissman, C.K. (1993). *Narrative Analysis*. Sage Publications, Inc.

Rogoff, B., Lave, J. (Ed.) (1984). *Everyday Cognition: Its Development in Social Context*. Cambridge, MA: Harvard University Press.

Rorty, R. (1990). Pragmatism as anti-representationalism. In J.P. Murphy (Ed.), *Pragmatism: From Peirce to Davidson* (pp. 1-6). Boulder, CO: Westview Press.

RTS (n.d.). Retrieved at August, 7, 2007 from <http://www.rts.org.br/noticias/noticias-gerais/cipo-leva-comunicacao-para-comunidades>

Schank, R. C., Fano, A., Bell, B., & Jona, M. (1994) The design of goal-based scenarios. *Journal of the Learning Sciences*, 3(4), 305-346.

Schwartz, P. (1991). *The Art of the Long View*. New York: Doubleday

Second Life (2003). Retrieved April, 3 2004, from <http://secondlife.com/>.

Senge, P. (1990). *The Fifth Discipline*. New York: Doubleday

Sgouros, N. & Kousidou, S. (2001). Generation and implementation of mixed-reality, narrative performances involving robotic actors. *Proceedings of International Conference on Virtual. Storytelling - ICVS*, Avignon, France. pp 69-78

Shaughnessy, N. (2005). Truths and lies: exploring the ethics of performance applications in *Research in Drama Education*. Vol. 10, No. 2, June 2005, pp. 201_212. Routledge.

Shea, J. (2000). Does parents' money matter? *Journal of Public Economics*, 77, 155-184.

Shneiderman, B. (1992). *Designing the user interface: strategies for effective human-computer interaction*. Addison-Wesley Longman, Incorporated

Shutzman, M. & Cohen-Cruz, J. (1994). *Playing Boal: theater, therapy, activism*. Routledge

Siegesmund, R. (1998). Why do we teach art today? Conceptions of art education and their justification. *Studies in Art Education*, 39 (3), 197-214

Siegler, R. (2006). Microgenetic studies of learning. In D. Kuhn & R. Siegler (Eds.), (W. Damon & R. Lerner, Series eds.), *Handbook of Child Psychology: Vol. 2. Cognition, Perception, and Language*. (6th edition). Hoboken NJ: Wiley.

SMIL(2007). Synchronized Multimedia .Retrieved on August 08, 2007 from <http://www.w3.org/AudioVideo/>

Smith, R.(1991). Towards percipience: a humanities curriculum for arts education. In Reimer, B., & Smith, R. A. (Eds.). (1992). *The Arts, education, and aesthetic knowing: Ninety-first yearbook of the national Society for the Study of Education*, Part II (pp. 51-69). Chicago: The University of Chicago Press.

Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). Preventing reading difficulties in young children. *Committee on the Prevention of Reading Difficulties in Young Children, National Research Council* (pp. 679– 744). Washington, DC7 The National Academies Press.

Soloway et al. (2004). Creating a Framework for Research on Systemic Technology Innovations. *Journal of the Learning Sciences*. 13(1). Lawrence Erlbaum Associates, Inc.

Soraci, Sal A., Jeffrey Franks, John Bransford, Richard Chechile, Robert Belli, Michael Carr, and Michael Carlin (1994). Incongruous Item Generation Effects: A Multiple-Cue Perspective, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, Vol. 20, No. 1, pp. 67-78.

SoudeAtitude (n.d.). Retrieved August 7, 2007 from <http://www.soudeatitude.org.br/>.

- Spencer, H. (1914). *The Principles of Psychology*. New York: D. Appleton and Co.
- Spolin, V. (1983). *Improvisation for the Theater: A Handbook of Teaching and Directing Techniques*. Northwestern University Press.
- Spradley, J. (1979). *The ethnographic interview*. New York : Holt, Rinehart and Winston.
- Spradley, J. (1980). *Participant Observation*. Holt, Rinehart and Winston.
- SquidSoup (2006). Retrieved October 12, 2007 from <http://www.squidsoup.org/>
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Sterman,D & Morecroft, J. (1994). *Modeling for Learning Organizations*. Portland: Productivity Press, Inc.
- Strauss, A. & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and procedures for developing grounded theory*. Thousand Oaks, Ca. SAGE Publications, Inc.
- Suchman, L. (1987). *Plans and situated actions: The problem of human/machine communication*. Cambridge, UK: Cambridge University Press.
- Sutton, P. (2005). *Drama PhD by Practice. The Dramatic Property: a New Paradigm of Applied Theatre Practice for a Globalised Media Culture*. Unpublished doctoral dissertation in Drama, University of Kent, 2006.
- Szilas,N. (2005). The Future of Interactive Drama. Proceedings of the Second *Australasian Conference on Interactive Entertainment*, Sydney, Australia. Pp 193-199.
- Szilas, N., Barles, J., and Kavakli, M. (2007). An implementation of real-time 3d interactive drama. *ACM Comput. Entertant.* 5, 1, Article 5 (January 2007), 18 Pages.
- Taylor, B., Dearing, E., & McCartney, K. (2004). Incomes and outcomes in early childhood. *Journal of Human Resources*, 39, 980-1007.
- Taussig, M. & Schechner, R. (1994). Boal in Brazil, France, The USA. An interview with Augusto Boal. In Schutzman, M. & Cohen-Cruz, J. (Eds.). *Playing Boal*. (pp.17-32). London and New York: Routledge.
- Thelivingnewspaper (n.d.). Retrieved May 23, 2007 from <http://www.thelivingnewspaper.net/go/miscellaneous/About.html>).
- TheSims (2006). Retrieved August 1st, 2007 from <http://thesims.ea.com/> .
- Turbine.(2004). Retrieved April, 3 2004, from <http://ac.turbinegames.com/>.

Turkle, S. (1984). *The Second Self: Computers and the Human Spirit*. New York: Simon & Schuster.

Turkle, S. (1995). *Life on the screen: identity in the age of the Internet*. New York: Simon & Schuster

U.S. Department of Education, Office of Educational Research and Improvement
National Center for Education Statistics. (2000). NAEP 1999:Trends in academic
progress: Three decades of student performance. Washington, DC: ED Pubs.

Vine, C. (1992). *Learning through theatre*. London: Jackson.

Virtual Puppeteers (2007). Retrieved October 12, 2007 from <http://www.vpups.com/>

Votruba-Drzal, E. (2003). Income changes and cognitive stimulation in young children's
home learning environments. *Journal of Marriage and Family*, 65, 341-355.

Vygotsky, L. (1962). *Thought and language*. Cambridge, MA : MIT Press.

Vygotsky, L. (1971). *Psychology of art*. Cambridge, MA: MIT Press.

Vygotsky, L.S. (1978). *Mind in Society*. Cambridge, MA: Harvard University Press.

Way, B. (1967). *Development through Drama*. Atlantic Highlands, N.J.: Humanities
Press.

Walton, D. & Krabbe, E. C. (1995). *Commitment in Dialogue: Basic Concepts of Interpersonal
Reasoning*. Albany: State University of New York Press.

Ward, Winifred. *Stories to Dramatize*. 6th ed. New Orleans, LA: Anchorage Press, 1981.

Washington School Research Center (2001). The Relationships Among Achievement,
Low Income, and Ethnicity Across Six Groups of Washington State Students; Technical
Report. Retrieved May, 28, 2007 from [http://www.spu.edu/wsrc/WSRC-
TechnicalReport-1-CorrectedFinal.pdf](http://www.spu.edu/wsrc/WSRC-TechnicalReport-1-CorrectedFinal.pdf)

Weinberg, S. & Abramowitz, S. (2002). *Data analysis for behavioral sciences using SPSS*. New
York: Cambridge University Press.

Wiersma, W. (1980). *Research methods in education: an introduction*. Itasca, Ill.: F. E.
Peacock.

Winnicott, D.W. (1989). *Playing and Reality*. London, New York: Routledge.

Zhang, Q et al (2003). Facial animation & hair: Geometry-driven photorealistic facial expression synthesis. Proceedings of the 2003 ACM SIGGRAPH/Eurographics Symposium on Computer Animation.

Zhao, W. , Chellappa, R. , Phillips, P. & Rosenfeld, A. (2003). Face recognition: A literature survey. *ACM Computing Surveys* (CSUR), Volume 35 Issue 4

Zizek, S. (1997). *The Plague of Fantasies*. London: Verso.

Appendix 1

Research Consent Forms

1st Study at SYCC

CONSENT TO PARTICIPATE IN A RESEARCH STUDY TUFTS UNIVERSITY

Title: Researching and designing learning environments with Internet technology for children

PRINCIPAL INVESTIGATOR:

Name: Alice Mello Cavallo _____ Tel: (617)776-3755
Dept.: Computer Science, Child Dev., Theater Email: Alice.Cavallo@tufts.edu

Advisor:

Name: Alva Couch Tel: (617)627-3674
Dept.: Computer Science Email: couch@eecs.tufts.edu

INTRODUCTION:

Your child is being invited to volunteer as a subject in a research study being conducted at Somerville Youth Community Center by a doctoral student from Tufts University. This consent form provides you with the information you will need when considering whether your child can participate in this research study. All research studies carried out at Tufts are governed by federal and state laws regulating human subjects' research. Pursuant to these laws and regulations, the researcher will first explain the study, and then she will ask if your child would like to participate. If your child decides to participate, you will be asked to sign this consent form which states that the study has been explained, that your child questions have been answered, and that you agree her or him to participate. You will be given a copy of this form to keep for your records.

STUDY PURPOSE:

Your child is invited to participate in a research study. In this study, I will introduce your child to a computer-based drama tool and observe how he or she interacts and learns with it. The way your child uses the tool will help me understand how to change the tool to be more usable by other children.

The expected duration of participation is 12 hours. We will provide six sessions of two hours each for three weeks.

Your child qualifies as a possible participant in this study because he or she is an 11 to 13 years old student from East Somerville Public School.

STUDY PROCEDURES:

If your child decides to participate in the study she or he will meet with a group of six children for six sessions of 2 hours each. For the first four sessions, your child will:

1. Engage in a drama related game (warm-up)
2. Have a circle time for discussion of the activities.
3. Work in groups of two or individually to create a digital dramatic play using the computer tool provided. Give emotions to face images, record the lines of the characters, add text and create an animation.

During the last two sessions you will:

4. Practice Virtual Forum Theater using the play you created with the group.

I will video tape the sessions and take some pictures of your child. I might ask your child some questions during the workshop, about how he or she feels about the computer software or the workshop activities.

STUDY RISKS:

Your child's participation in this study involves minimal risks. These risks include:

1. Your child might get bored or tire of using the computer for extended periods.
2. Your child might not like the drama warm-ups.
3. Your child might have a disagreement with another child.

STUDY BENEFITS:

Benefits to your child may include new computer skills, understanding of Drama, and skills in interacting with groups of children. Activities might also improve your child's ability to identify, recognize and respect others' points of view.

Benefits to society may include more effective communication and conflict resolution skills.

ALTERNATIVES TO PARTICIPATING IN THE RESEARCH STUDY:

Your child may choose not to participate in this study at no cost.

COSTS TO THE SUBJECT:

There are no costs for participating in this research.

COMPENSATION:

None.

CONFIDENTIALITY:

If you consent to allow your child to participate in this research, her or his personal information will be kept confidential and will not be released without your written permission, except as described in this paragraph or as required by law.

Your child name is kept confidential and will not be recorded with his or her interview responses. Your child will have a participant code in place of his or her name. Your

child's personal information shall be stored separately from her or his coded consent form and interview responses.

Your child's name will not be reported in any publication; only data that does not identify her or him individually will be made public.

Your child's picture will not be included in the results of this study unless you consent in writing on another form. The video tape will be analyzed by myself and my research advisors, but will not be shown to anyone else. I will use the video tape to help me analyze the learning process of each subject and provide data for my qualitative study.

FUNDING:

This research is funded by the Tufts University Center for Children.

This study has been reviewed by the Human Subjects Review Board at Tufts University. The Board is responsible for making sure that risks (if any) to the subject will be outweighed by the potential benefit to the subject and/or to the importance of the information to be gained, that the rights and welfare of each person is adequately protected and that informed consent will be obtained.

VOLUNTARY PARTICIPATION IN, AND WITHDRAWAL FROM, THE STUDY:

The decision to participate in this study is entirely up to you and your child. Participation is voluntary. You can refuse to let your child participate, or she or he can withdraw from the study at any time, and such a decision will not affect your relationship with Tufts University, either now or in the future. Nor will a refusal or withdrawal of participation result in the loss of any other benefits to which you are otherwise entitled. Signing this form does not waive any of your legal rights. During the course of the research study, you will be told of any significant new findings that may influence your child willingness to continue to participate in the research. Should you decide to withdraw her or him from the study as a result of those findings or for any other reason, you should contact the Principal Investigator and let him/her know about this decision. The Principal Investigator will discuss with you any considerations relating to your child welfare involved in discontinuing her or his participation in the study.

Your child's participation in the research study may be discontinued if the child is not willing to engage with the activities.

CONTACTS:

Whom to contact about the research: Alice C. Mello Cavallo

If you have any questions, please ask, and we will do our best to answer them. If you have additional questions in the future, you can reach her at (617)776-3755. Copies of this consent form are available by request.

Whom to contact about the subjects' rights

If you have any questions on your rights as a research subject, you can call the Institutional Review Board at (617) 627-3417 for information.

Whom to contact in the event of a research-related injury Alice Cavallo, or Silvio Almanzar (617-6256600 X 2256).

STATEMENT OF CONSENT:

I have discussed this study with (PI) to my satisfaction. I understand that my child participation is voluntary and that she or he can withdraw from the study at any time without prejudice. Signing this form does not waive any of my legal rights.

By signing below, you are indicating that this form has been explained to you, that you understand it, and any questions you have about the study have been answered. You are indicating that you understand the ways the study data may be used and how your child privacy will be protected. By signing this form, you are agreeing to your child participation in the study *at this time only*.

I have been informed that if I believe that my child have sustained injury as a result of participating in a research study, I may contact the Principal Investigator, Alice Cavallo, at (617) 776-3755, her advisor, Alva Couch at (617)627-3674, or the Institutional Review Board at (617) 627-3417. I understand that:

- a) Tufts University will arrange for any emergency medical care determined to be necessary;
- b) I will be responsible for the cost of such care, either personally or through medical insurance or other forms of medical coverage; and
- c) No monetary compensation for wages lost as a result of injury will be paid to me by Tufts University.

I ACKNOWLEDGE THAT I HAVE READ THE ABOVE EXPLANATION OF THIS STUDY, THAT ALL OF MY QUESTIONS HAVE BEEN SATISFACTORILY ANSWERED, AND I AGREE TO PARTICIPATE IN THIS RESEARCH STUDY.

Signature of study volunteer. _____ Date

I ACKNOWLEDGE THAT I HAVE READ THE ABOVE EXPLANATION OF THIS STUDY, AND I AGREE TO THE PARTICIPATION OF MY CHILD IN THIS RESEARCH STUDY. I ALSO GIVE MY PERMISSION TO HAVE MY DAUGHTER/SON BE PHOTOGRAPHED AND VIDEO TAPED DURING THIS STUDY.

Signature of study volunteer's
parent or guardian) providing legal consent_____
Date_____

Signature of study volunteer's
parent or guardian) providing legal consent_____
Date_____

Signature of
witness_____ Date

I CERTIFY THAT I HAVE EXPLAINED FULLY TO THE ABOVE SUBJECT
THE NATURE AND PURPOSE, PROCEDURES AND THE POSSIBLE RISK
AND POTENTIAL BENEFITS OF THIS RESEARCH STUDY.

Signature of researcher or
designate_____ Date

Somerville, March 28, 2004

Dear Parents,

I am offering a workshop on *Virtual Forum Theater* at Somerville Youth Community Center for children ages 11 to 13. This workshop is part of my Ph.D. research at Tufts University on Drama, Learning and Technology. During each session, children will do a few dramatic exercises, gather in a circle to discuss daily activities, and work on a computer in groups to create “digital plays” for about 45 minutes to one hour. Each play will be a simple animation with voice recording or text.

Part of the purpose of this workshop is to understand how children interact with the computer in creating drama. I need your permission to take pictures and videotape the children while they work. These pictures and video will be analyzed as part of my doctoral dissertation, but will not be published anywhere without your consent. I can only invite your child to participate if you are willing to allow him or her to be videotaped and photographed during the workshop.

We will meet two times a week for three weeks. and the six children will be under my supervision and leadership at SYCC from 3:30 to 5pm. I expect you to pick them up promptly at 5 pm. You can find more information at my website: <http://www.media.mit.edu/~mello/> .

Queridos Pais,

Eu estou oferecendo uma oficina em *Teatro de Forum Virtual* no Centro Comunitario Juvenil de Somerville para crianças entre 11 e 13 anos. Esta oficina é parte da minha pesquisa de PhD na universidade Tufts em Drama, Aprendizado e Tecnologia. As crianças irão participar de alguns exercícios dramáticos, de um círculo onde discutiremos as atividades diárias, e trabalharão no computador entre 45 minutos a uma hora. Elas irão criar desenhos, or tirar fotos a fim de criarem uma peça digital. Essa peça será uma simples animação com voz ou texto.

Parte do objetivo desta oficina é entender como as crianças interagem com o computador criando peças dramáticas. Eu preciso da sua permissão para tirar fotos e filmar as crianças enquanto elas trabalham. Essa fotos e vídeos serão usados somente para coleta de dados que analisarei para escrever parte da minha pesquisa. Não serão divulgadas em nenhum lugar sem o seu consentimento. Eu só poderei aceitar crianças cujos pais me derem esse consentimento.

Nos nos encontraremos duas vezes por semana durante três semanas e as seis crianças ficarão sob minha supervisão e liderança no SYCC entre 15:30 e 17:00 hs. Eu conto com a sua pontualidade em busca-las as 17hs. Vocês podem encontrar mais informações no meu site : <http://www.media.mit.edu/~mello/> .

Alice Cristina Mello Cavallo

Social, Behavioral & Educational Research IRB
INFORMED CONSENT FORM FOR MINORS

Title of the Research Study: Investigating how Virtual Forum Theater fosters the learning of conflict resolution and expressive fluency: a design-based research.

Protocol Number:

Principal Investigator: Alice Mello Cavallo Tel: (617)776-3755
Dept.: Computer Science, Child Dev., Theater Email: Alice.Cavallo@tufts.edu
Faculty Advisor: Alva Couch, Marina Bers and Downing Cless Tel: (617)627-3674
Dept.: Computer Science Email: couch@eecs.tufts.edu, marina.bers@tufts.edu,
downing.cless@tufts.edu
Emergency Contact: Alice Cavallo – 617-7763755
Wilber Renderos - 617-497-9080 ext. 30

You are being asked to grant permission for your son/daughter/legal dependent to participate in a research study. Granting permission for participation is voluntary which means you can choose whether or not to grant permission for participation. If you decide your child will participate or not participate there will be no loss of benefits to which he/she is otherwise entitled. Before you make a decision you will need to know the purpose of the study, the possible risks and benefits to the child of being part of the study and what he/she will have to do if you decide to participate.

If you do not understand what you are reading, do not sign it. Please ask the researcher to explain anything you do not understand, including any language contained in this form. If you decide to allow your child to participate, you will be asked to sign this form and a copy will be given to you. Keep this form, in it you will find contact information and answers to questions about the study. You may ask to have this form read to you.

Introduction

My name is Alice Cavallo and I am the Principal Investigator of this study. This study is part of my doctoral research at Tufts University where I am currently an Interdisciplinary PhD. Student on Technology, Theater and Education. Manasa is a master student from the Educational Department at Tufts and she will be helping me with this group. My advisors are from the Computer Science, Child Development and Theater Departments. They might see some of the data related to this study.

Purpose of the Study

APPROVED IRB

MAY 10 2006

**TUFTS UNIVERSITY
MEDFORD CAMPUS**

EXPIRES

MAY 09 2007

**TUFTS UNIVERSITY
MEDFORD IRB**

This consent form is part of Appendix 6. The Portuguese version used in the 2nd and 3rd study is below and it was also approved by IRB.

Consent form for parents in Portuguese

Titulo da Pesquisa: Investigando como Teatro de Foro Virtual promove o aprendizado de resolução de conflito, e fluência de expressão: uma pesquisa baseada em interações planejadas.

Número do Protocolo:

Pesquisador Responsável: Alice Mello Cavallo

Tel: (011-55-71)33453670

Depto.: Ciência da Computação, Desenvolvimento Infantil, Teatro

Email: Alice.Cavallo@tufts.edu

Orientador: Alva Couch, Marina Bers and Downing Cless Tel: (617)627-3674

Depto.: Ciência da Computação Email: couch@eecs.tufts.edu,
marina.bers@tufts.edu, downing.cless@tufts.edu

Contato de Emergência: Alice Cavallo – 71-33453670, Norma Matos , ou Elsa de Mattos

Solicitamos a sua permissão para que seu filho ou filha, ou dependente legal (que às vezes aqui chamaremos de “sua criança”), possa participar de um estudo que será realizado com alguns alunos desta escola.

Trata-se de uma pesquisa de doutorado da Universidade Tufts, localizada em Cambridge, no Estado de Massachusetts, nos EUA.

A permissão para a participação neste estudo é um ato voluntário. Você pode concordar ou não com a participação de seu filho(a). Sua decisão não afetará ou causará nenhuma perda de benefício a que ele(a) tenha direito no momento ou no futuro.

Antes de decidir, faz-se necessário o seu total conhecimento sobre o estudo, seus objetivos, os possíveis riscos e benefícios para a criança que fará parte da pesquisa e o que ela terá que fazer se o(a) sr(a) concordar com a sua participação.

Caso o(a) sr(a) não entenda o que estiver lendo, não assine. Peça ao pesquisador para lhe explicar tudo o que não entendeu, inclusive a linguagem contida neste documento.

Se decidir pela participação de seu filho, ou filha, por favor, assine este documento. Uma cópia dele ficará em suas mãos. Guarde a sua cópia, pois, nela o(a) sr(a) encontrará informações e respostas de questões relativas ao estudo. O(a) sr(a) poderá pedir para que o pesquisador leia em voz alta esse documento para a sua melhor compreensão.

Introdução

Meu nome é Alice Cavallo, sou a Pesquisadora Responsável por esse estudo. Ele faz parte da minha pesquisa de doutorado na Universidade Tufts onde faço o doutorado interdisciplinar em Tecnologia, Teatro e Educação. Meus orientadores são do

Departamento de Ciência da Computação, Desenvolvimento Infantil e Teatro. Eles terão acesso aos resultados deste estudo.

Objetivo do Estudo

Introduzir sua criança numa ferramenta computadorizada de teatro e observar como ela interage e aprende com a mesma. A maneira como ela usar a ferramenta ajudar-me-á a entender de que forma poderei aperfeiçoá-la para que a mesma seja útil e eficaz para outras crianças. Observarei, principalmente, se a ferramenta proporciona o aprendizado desejado nos objetivos planejados, tais como: habilidades argumentativas, resolução de conflitos e fluência de expressão.

Informação sobre o Participante

Sua criança foi qualificada como uma possível participante deste estudo por ter entre 11 e 14 anos de idade e ser um(a) aluno(a) do COLÉGIO ESTADUAL LANDULFO ALVES ou um(a) participante da Ong CIPÓ.

Este estudo acontecerá no período de duas semanas entre ____ e ____ de agosto de 2006. Isto significa que a criança deverá estar presente e participar de oito ou dez sessões com uma duração de no máximo vinte e cinco horas. Cada sessão durará aproximadamente 2,5 horas.

Sua criança será uma entre os oito ou dez estudantes deste estudo.

Local

Ela deverá se dirigir ao Colégio Estadual Landulfo Alves pontualmente as ____ hs de segunda a sexta durante as semanas citadas acima.

Três adultos estarão presentes neste estudo: o pesquisador responsável, um(a) estudante de mestrado da UFBA e um(a) funcionário(a) do Colégio.

Procedimentos do estudo

Se sua criança for participar, ela se reunirá com um grupo de sete a nove crianças por oito a dez sessões de duas horas e meia cada. Nas primeiras seis sessões, sua criança irá:

- Engajar-se em jogos dramáticos.
- Participar de uma roda de discussões sobre as atividades do dia.
- Trabalhar em grupos de quatro ou cinco para criar uma peça dramática digital usando, Teatro de Foro Virtual (VFT), que é a ferramenta computadorizada oferecida.

- Dar emoções a imagens faciais, gravar falas dos personagens, tirar fotos, adicionar texto e criar uma animação usando o VFT.

Durante as duas últimas sessões ela irá:

- Praticar Teatro de Foro Virtual, usando a peça que tiver criado com o respectivo grupo, e interagir com outro grupo on-line. O grupo on-line do Cipó colaborará com o grupo da sua criança mudando o curso de ações da peça, criando assim um diálogo on-line através de ações dramáticas.

Faremos algumas perguntas à criança durante a oficina (estudo), para sabermos como ela se sente usando o aplicativo educacional VFT, e sobre a sua experiência de aprendizado.

Um(a) estudante da UFBA estará me ajudando a tomar notas relacionadas à interação das crianças com o VFT, umas com as outras e com os adultos presentes na sala. Este(a) estudante também observará como se processa o aprendizado de cada criança do grupo.

Solicitaremos, ainda, que a criança preencha um questionário no início da primeira sessão e outro na última. Vamos, também, gravar as sessões com uma ou duas câmeras de vídeo estacionárias. Talvez sejam tiradas algumas fotos das crianças trabalhando. Por favor, veja a sessão de Privacidade e Confidencialidade para maiores informações sobre fotografias, e veja também o trecho anexo de permissão para fotografias.

Riscos

Este estudo foi revisado pela *Human Subjects Review Board* (Conselho de Revisão dos Sujeitos Humanos) da Universidade Tufts.

O Conselho é responsável pela garantia de que riscos, (se houver algum) para o participante, seja compensado pelo benefício em potencial da pesquisa para o mesmo, e/ou compensado pela informação adquirida. O Conselho garante também que os direitos e o bem-estar de cada pessoa sejam adequadamente protegidos e que um consentimento bem informado seja obtido antes do estudo.

A participação de sua criança neste estudo envolve riscos mínimos. Estes riscos incluem:

1. a criança sentir monotonia ou se cansar por usar o computador por um período de tempo muito longo;
2. a criança não gostar dos exercícios dramáticos;
3. a criança ter algum desentendimento com outra criança do grupo.

Benefícios

Os benefícios à criança incluem novas habilidades de multimídia com o computador e a aquisição de conhecimentos sobre Drama e Teatro. As atividades podem também aperfeiçoar a habilidade de identificar, reconhecer e respeitar o ponto de vista dos outros.

Os benefícios para a sociedade, incluem um maior número de cidadãos com habilidades de comunicação mais efetiva e o aperfeiçoamento da aptidão em resolver conflitos, bem como, melhor conhecimento e capacidade para manusear mídias computadorizadas e internet.

Alternativas

O(A) sr(a) tem a liberdade de dar ou não permissão para a sua criança participar do estudo. A sua decisão de permitir que ela faça parte dessa pesquisa é voluntária. O(A) sr(a) poderá inclusive interromper esta participação, a qualquer momento, sem nenhuma consequência negativa. Nós diremos à sua criança que ela não precisa responder nenhuma pergunta que não queira.

Não haverá nenhuma penalidade (nenhum problema) se o(a) sr(a) resolver não autorizar a participação de sua criança nesse estudo. O sr(a) ou sua criança não perderão nenhum benefício ou vantagens que tenham agora ou que possam ter no futuro. Qualquer atendimento que estiverem recebendo agora continuará, mesmo que a criança não participe deste estudo.

A sua alternativa de participação é não permitir que a criança faça parte da pesquisa.

Pagamentos

Não há nenhum custo para participar deste estudo (não vão precisar pagar nada).

Compensação

Não pagaremos a sua criança para participar deste estudo (ela ganhará os benefícios de aprendizagem elencados acima).

Conclusão e Interrupção

O estudo termina quando todos os participantes tiverem completado todas as tarefas estabelecidas pelo pesquisador e todas as informações tiverem sido coletadas. O estudo pode ser interrompido sem o seu consentimento pelos seguintes motivos:

a) se o Pesquisador Responsável concluir que é a melhor solução para a segurança e a saúde da criança. (Informaremos, caso isso ocorra, as razões pelas quais a participação da sua criança foi interrompida);

b) se o (a) sr(a) ou a sua criança não estiverem seguindo as instruções do estudo.

O Patrocinador, ou o oficial do Escritório do Vice Diretor da Universidade Tufts podem aparecer nas sessões do estudo a qualquer momento.

O(a) sr(a) tem o direito de retirar a sua criança do estudo quando quiser. Tem ainda o direito de requisitar que toda a informação coletada sobre a criança até a data do seu desligamento, seja também retirada do estudo. Não haverá nenhuma penalidade ou perda para o sr(a) nem para ela.

Se não desejar que sua criança participe desse estudo - pesquisa, por favor entre em contato com Alice Cavallo, por telefone 3345-3670 ou via e-mail Alice.Cavallo@tufts.edu.

Privacidade e Confidencialidade

A equipe desta pesquisa fará todo o esforço para manter confidencial toda a informação que as crianças derem durante o estudo, como requerido por lei.

O Conselho de Revisão Institucional - *Institutional Review Board* (IRB) da Universidade Tufts é responsável pela proteção dos direitos e bem estar dos participantes dessa pesquisa. O IRB terá acesso às informações sobre o estudo. Todos os documentos que forem assinados, nos quais o(a) sr(a) ou a criança possam ser identificados por nome, ficarão fechados numa gaveta no escritório de Alice Cavallo e serão mantidos como confidenciais. Todos eles serão destruídos quando o estudo terminar.

Se o(a) sr(a) consentir que a sua criança participe desta pesquisa, qualquer informação que lhe diga respeito, será mantida confidencial e não poderá ser publicada ou distribuída sem a sua permissão escrita, exceto como descrito neste parágrafo ou requerido pela lei.

O nome da criança também é confidencial e não será registrado com as suas respectivas respostas. Daremos um código para ser usado em lugar do seu nome. Informações pessoais da criança serão guardadas separadas das respostas individuais aos questionários e formulários de consentimento por elas assinadas.

O nome da criança não será publicado, mas somente dados que não a identifiquem serão feitos públicos.

A foto da criança não será incluída em nenhum relatório, artigo ou tese de doutorado, a não ser que o(a) sr(a) dê o seu consentimento por escrito (favor ver o formulário de consentimento anexo). A fita de vídeo será analisada por mim, e meus orientadores. Ninguém mais terá acesso a essas fitas. Usarei as fitas para ajudar na análise do processo de aprendizado de cada participante e proporcionar dados para meu estudo qualitativo.

Ferimentos

No quase impossível evento de que uma criança se machuque ou se sinta emocionalmente desconfortável enquanto estiver participando do estudo, deverá ser feito contato com o Pesquisador Responsável ou o contato de emergência, ambos indicados na primeira página deste formulário.

Direitos e Bem-estar

Se o(a) sr(a) tem perguntas sobre o direito e bem estar da criança como uma voluntária nessa pesquisa, por favor entre em contato com Helen Page, a administradora do IRB no telefone (55-617) 627-3417 e/ou o Pesquisador Responsável cujo nome está na primeira página deste documento.

E se o (a) sr(a) tem perguntas sobre a pesquisa, por favor entre em contato com o Pesquisador Responsável, ou qualquer outra pessoa identificada neste documento.

Quando assinar este documento, estara concordando que a sua criança tome parte neste estudo pesquisa. Se tiver perguntas ou se tiver algo que nao entenda, por favor pergunte antes de assinar. Recebera uma copia desse documento.

Assinatura dos pais/guardia(s) legal (is)	Data
---	------

Nome em forma do pai/mae/guardia(s) legal (is)
--

Assinatura da Pessoa Obtendo Consentimento	Data
--	------

Nome em forma da Pessoa Obtendo Consentimento	Posicao
---	---------

Eu concordo que a minha criança seja filmada durante o estudo.

Assinatura dos pais/guardia(s) legal (is)	Data
---	------

Eu concordo que a minha criança seja fotografada durante o estudo.

Assinatura dos pais/guardia(s) legal (is)	Data
---	------

Eu concordo que a voz da minha criança seja gravada durante o estudo.

Assinatura dos pais/guardia(s) legal (is)

Data

Assinatura de uma *Testemunha (se aplicável)*

Data

Nome em forma de uma *Testemunha (se aplicável)*

Eu concordo que a foto do meu filho(a) seja usada em publicações acadêmicas sem associação com seu nome verdadeiro.

Assinatura dos pais/guardia(s) legal (is)

Data

Assinatura de uma *Testemunha (se aplicável)*

Data

Nome em forma de uma *Testemunha (se aplicável)*

(Uma testemunha é requerida quando o responsável ou participante não for capaz de dar o consentimento por escrito por algum motivo. Neste caso, o consentimento verbal é documentado e assinado pela testemunha.)

Appendix 2

VFT's Scripts

SYCC's Script: Script # 1

Scene 1:

KAMISHA: Get out of my room now

LATISHA: I won't get out just cause you said so. I am here because I need your advice in school. Can you help me?

KAMISHA: No, I don't care about your problem. Why would I solve your problems if I have my own problems to solve?

LATISHA: Please, I need your help though?

KAMISHA: Ask Mom to help you cause she likes you better than me. Or ask one of your dumb friends.

Scene 2

Latisha talking to Lila

LATISHA: Oh my god, I can't understand my sister, she never listens to my problems and she does not understand them anyway.

LILA: Of course they know you exist, but they have their own problems to figure out and don't have time for yours.

LATISHA: Yes, thanks for listening to my problems, because I don't have my family, but you are always here

LILA: Yes, but not much longer, because you're growing up and do not need to have a baby-sitter.

LATISHA: But you can't go, because you are the only one who understands me!

LISA: I know honey, but I can't decide that; your Mom is the one who decides that, not me.

LATISHA: Ok, but I don't want you to go anyways.

LISA: You know what I am gonna do? I will help you while I am here and when I leave I give you my address and phone number, ok?

LATISHA: ok that's good.

Scene 3

LILA: I heard what you have told your sister.

KAMISHA: Its not like she ever listens to my problems!

LILA: you're older, you should listen to her problems and she'll listen to yours.

KAMISHA: but i don't lik listenin 2 dumb problems

LILA: If you ever listen to her problems you will think that her problems are the same as the one you had when you were her age.

KAMISHA: Ya rite!

LILA: Have you ever thought about thinking that all the sisters help each other even if they have problems like yours.

KAMISHA: NO i haven't think bout dat but not me and Latisha we don't !

LILA: can u try to talk to her?

KAMISHA: NO couse I still dont care about her problems

LILA: i think it would be good if u did tak to her about her problems.

KAMISHA: but the thing is that I just dont care.

LILA: Well i wish u would tak to her.

KAMISHA: mabye i'll tak to her. wen i feel lik it.

LILA: please think about it i hope u will tak 2 her about her problems.

End of Scene3

Scene 4

Setting Latisha's room.

LATISHA: What r U doing here

KAMISHA: I came to listen to your problems and try to help you

LATISHA: Well I dont want U to listen to my prblems anymore.

KAMISHA: When I try to help you dont want my help.

LATISHA: I don't want your help anymore because I have another person that will help me more than you.

KAMISHA: Who is going to help u?

LATISHA: Maria will.

KAMISHA: But Maria is leaving soon. She would b happy if she knew u were getting help from me.

LATISHA: She cares more bout my probs than u do.

KAMISHA: But I care about ur probs now. i'm sorry bout wat i said b4. y can't i help?

LATISHA: fine help me then.

KAMISHA: Ok fine good. wat's ur problem.

LATISHA: ok (sigh) there's a boy bothering me. He's called Mario and he calls his self MJ.

He keeps calling me names and threatening me. he said if i told anybody he'd beat me up. that's why i didn't tell my friends.

KAMISHA: Ok u have to tell ur teacher. cuz if u don't u will never solve the problem. tell the teacher what he said and then u wont get hurt.

LATISHA: Ok are you sure

KAMISHA: yes

LATISHA: thanks. your the best sister ever.

KAMISHA: Thank you.

Landulfo Alves's Scripts

Script # 2

Bus Scene

JAJA: Hurry up, the bus is coming!!

MANU: Let's go!!!

In the bus.

CASHIER MAN: Good morning, pass you card through, please? Sorry, young man, this card is out of credit. Excuse me, please!

JAJA: How so? I have no money to get back home. I have to pay full price and stand up in the bus? Nobody deserves that!

MANU: Let's go with this line!

PATTY: Jaja, how are you going to get back home?

CASHIER MAN: Sorry, young man, but you must pay full price.

JAJA: Patty, do you have money to lend me?

PATTY: I have it, but not enough!

JAJA: Do you have Manu?

MANU: I do, grab it!

JAJA: Thank you girls! But, who have seen something like that before? This is injustice to have to pay full price.

(Another student gets up in the bus)

ISABELE: How is it? I put credit two weeks ago. What am I going to do now?

JULI: The worst of all is that I have no money to lend you.

CASHIER MAN: The only solution is to pass through together.

ISABELLE: See? I don't know why this card was invented; I wanna see if every time I have to catch a bus, I need to put credit in the card.

CASHIER MAN: The best solution is for you to unite themselves and claim your rights!

JAJA: See it? He let them go through together, but not me. I had to go through alone and pay full price.

Script #3

Train Scene

PATTY: Let's go all,
(*They all talk aloud as entering the train*).
I wanna sit, let's go quick!

JAJA: Shit, that idiot bus cashier did not let me in, but he let the girl!

MANU: What an injustice on you!

JORGE: How does this bus card work?

RITA: I don't know because I only use the train.

PATTY: Explain to Jorge how does the pass work, Manu?

MANU: To the Salvador card, one has to give money in advance to charge it, which is an absurd; the old one, we would pay as we get into the bus.

JAJA: I like the old one better, because the money I use to charge the card, I could use to buy something else.

MANU: Exactly. They want to buy us with cheap promotions, but when all change to Salvador card, then the promotions will stop and we will not be able to get back. It will be too late.

RITA: Then the strikes happen damaging all the students, teachers, the bus drivers among other professionals.

PATTY: Who would tell that an issue from SETEPE would be bad for so many people?

RITA: I heard that the bus companies will have buses with a card reader and no cashier man.

JORGE: What about the parents who earn by the day or by week? They don't have money to charge the bus card in advance.

MANU: Right, these students, who can't really afford, have to pay full price. This is really an injustice!!!!

RITA: The bus companies benefit from it, since they get money in advance.

PATTY: This is true and they also have less cash money in the bus in case of robbery.

RITA: The best would be to end this card charging, because it does not help any of us.

Rotary's Script Script # 4

Classroom Scene

PATRICINHA¹⁸: Eee, this little black one meddles in everything!

NEGUINHA: This is crime, you know? I'm going to advocate for my rights. My lawyer will look for you.

MAURICINHO: Shut up, unbearable!

INTERVENTION FRAME 1(Virtual Joker): What would you do if you were in the role of this discriminated student?

TEACHER: (*to the class*). Yes, it is one page, if you return today, but two pages if you return tomorrow at the beginning of the class.

FAROFA: I'm not going to do anything; neither today nor tomorrow.

NEGUINHA: Farofa, you are a good person, but you never want to do anything!

MARIA LUIZA: Teacher, I am not being able to concentrate.

TEACHER: Farofa, you are going to the principal's office now!

FAROFA: Take me out of here, crazy?

INTERVENTION FRAME 2(Virtual Joker): How would you react if you were in the role of the teacher?

TEACHER: Maria Luiza go call the principal, please?

MARIA LUIZA: Only if it is now, teacher?

FAROFA: I am going out, because someone is calling me out there and not because you are ordering me!

(*Bell rings*)

TEACHER: I will come back for the essays after the break!

MAURICINHO: Hey my friend, let's drink a juice?

NERD: No, I don't want.

MAURICINHO: Yes, you do. Look, get against the wall; you will write my essay and give it to me tomorrow morning, and if you don't do it, I beat you up, see?

INTERVENTION FRAME 3 (Virtual Joker): Is this aggressive attitude normal and correct? What would you do if you were the nerd student?

Kabum's response

Response to racial discrimination (Intervention Frame 1)

NEGUINHA: I did it teacher.

MAURICINHO: Shut up, unbearable!

¹⁸ Patricinha is a nickname for girls who are frivolous, Mauricinho are frivolous boys and Neguinha is a diminutive for black girl or woman (most of the times it is a lovely nickname).

NEGUINHA: Patricia, can I borrow your pen?

PATRICINHA: I don't lend my pen to dark skin people.

NEGUINHA: I am proud of my black skin, you are white on the outside, but inside we are all equal. We should respect each other.

Response to teacher's disrespect (Intervention Frame 2)

FAROFA: I am not going to write this essay.

TEACHER: Of course, you have to.

FAROFA: Shut up, nobody asked your opinion!

NERD: Teacher, I am not being able to concentrate.

TEACHER: Farofa, get out of the room, please?

FAROFA: I wanna see who will take me out, crazy?

TEACHER: If I were crazy, I would not be teaching you.

Response to the bullying (Intervention Frame 3)

MAURICINHO: Look, I want you to write my essay for tomorrow morning and if you don't do it, I break your face.

NERD: Ok, I do it!

NERD: (*to himself*). I will tell the principal that he is threatening me to do his essay!

Aplicação's response

PAGODE STUDENT 1: on the floor, on the floor, show it Mr. Barbosa, on the floor show it (rhymes of a "pagode" music, a Brazilian music style)

There come the crazy rock-roll guys, man!

PAGODE STUDENT 2: There comes the man in black, look?

ROCK STUDENT 3: These pagodeiros are a group of freaks!

ROCK STUDENT 4: And they don't know how to do anything, but to swing down to the floor.

PAGODE STUDENT 2: How is it? Who is a freak here, brother?

ROCK STUDENT 3: Shut up or I will smash you, gay!

ROCK STUDENT 5: That it is, to really smash you!

PAGODE STUDENT 2: What is it?

PAGODE STUDENT 6: Calm down you all, we are for peace!

PAGODE STUDENT 1 and 2: And everybody asks for peace, and the white dove flew, flew (rhyme of a "pagode" music)

PAGODE STUDENT 6: Let's have consciousness man, we enjoy ours [music], they enjoy theirs [music]. Let's finish with this dispute, you know?

ROCK STUDENT 3: Man, I am not obliged to like what you like, you know? I have no interest in your music, but I need to respect, get it?

PAGODE STUDENT 2: That is it!

ROCK STUDENT 5: You said it, you said it!

They all clap hands and greet each other.

ROCK STUDENT 5: Yeah, girls!

Script # 5

Gremio Scene:

ADROALDO: Good morning, people!!!

EVERYBODY: Good morning!

ADROALDO: I called this meeting here, because the school principal together with the school are asking us for something new; something to break the routine; then I called you all here so that together we can reach a consensus of what to do; so I want your opinion; what do you suggest?

TADEU: We could do a project about education...

LUDI: I think we should do a fashion show.

LILLIAN: Not a fashion show, not a fashion show... I think we should do something about racism,

IRENE: No! I think it would be better to approach the educational area influencing the children to continue in school.

They all talk at the same time until Adroaldo interrupts them.

ADROALDO: Silence, silence! I think it is better, I don't think, I am sure that it is better to make a context approaching everything you want. So, in the context there will be a fashion show, and educational project influencing the kids not to leave school, a project about racism and so on. Do all of you like it?

EVERYBODY: Yes.

Kabum's script

Script # 6

Noise Scene:

NEIGHBOR: Finally, I got home. Now I am going to listen to music and wash my dishes.

In the house next door:

DANILO: Rodrigo? I am home and I'm going to my room. When you mother comes home, tell her to go talk to me.

FABIANA: Good night son? Are you father already home?

RODRIGO: Yes, my mother! He's waiting for you in his bedroom.

FABIANA: Danilo, what would you like to talk to me?

DANILO: Fabiana, are the prices of these construction materials good enough to by for the work in my working building? *(Pointing to the web browser)*

RODRIGO: My mother, what is the square root of nine?

The neighbor is listening to a very loud music and singing over it.

FABIANA: What?

RODRIGO: Saint, is there too much noise! How can one study like that?

FABIANA: Wait there that I'm going to talk to your father.

Danilo goes to the neighbor and knocks at her door.

DANILO: Neighbor could you please decrease the volume of your stereo? I am working on the computer, my wife is trying to watch the news on the TV and my son is trying to study. Please [have] a bit of tolerance!

NEIGHBOR: I low it down if I want to. The ones who are bothered should get away. *She slams her door on their faces.*

Script # 7

Dirt Scene:

DAUGHTER: Hi dad, I am home and hungry!

NIECE: Uncle, is there anything to eat?

UNCLE: I will see if there are cookies in the shelves. Ihh, it is finished; we need to ask the neighbor. *He goes to the neighbor.*

UNCLE: Fabiana, could you lend me a package of cookies?

FABIANA'S BROTHER: Wait I will look to see if we have it.

FABIANA: There are only these ones. Do you want them?

UNCLE: Yes, thank you.

NIECE: Where is the juice?

UNCLE: It's gone.

DAUGHTER: Need to ask the neighbor!

DAUGHTER: Fabiana, could you give me a packet of k-suco?

FABIANA: K-suco costs 10 cents at [the store in] the corner, my dear!

FABIANA'S FRIEND: Fabiana, have you seen how your yard is dirt?

FABIANA: Yes, our neighbors throw a lot of trash here. They are like pigs; I will sweep the trash all back to their yard.

FABIANA'S BROTHER: That is it, my sister!

UNCLE: Look at this? The neighbor is throwing the trash all back here.

DAUGHTER: Return it to there!

They all start to shout at each other until Fabiana's brother interrupts them.

FABIANA'S BROTHER: All of what you know to do is fight. Why don't you all go to sleep?

Aplicacao's script

Script # 8

The mall scene:

SALESWOMAN: Good night! How can I help you?

CUSTOMER 1: I would like to buy a sandal to give as a present to my mother.

SALESWOMAN: What's your mother shoes number?

CUSTOMER 1: 37

SALESWOMAN: Are you buying with credit card or cash?

CUSTOMER 1: Credit card

SALESWOMAN: Could I help you?

CUSTOMER 2: Yes you can. I would like a long dress for a night party.

SALESWOMAN: Oh yes, we have this red one here with a décolté very good for a night event.

CUSTOMER 2: Ah, décolté, I know...

SALESWOMAN: There is also this one with the opening in the back that comes down all the way to the lower back. *She touches close to the behinds of the customer.*

CUSTOMER 3: Excuse me, I would like to see...

SALESWOMAN: One moment!

SALESWOMAN: There is also this one with embroidery that comes to the middle of your legs. *She touches at the customer leg.*

CUSTOMER 2: Excuse me! You are touching me too much, you know? I am not lesbian. You know what? I'm going to another store. Tchau.

SALESWOMAN: Mrs?

INTERVENTION FRAME 1 (*Virtual Joker*): What would you do if you were the customer?

... (*Two teenagers enter the store initiating the second conflict*)

CUSTOMER 3: Man? Let's see the price of that Nike? Let's go?

CUSTOMER 4: Good night, Aunt? With all do respect (Na moral *), could you tell me the price of this snicker? * a slang

SALES WOMAN: No dear, there is no price. Up there (*she points to the second floor of the mall*), there is a sale. You can go there!

CUSTOMER 3: Eee! Man, with all do respect, let's go, let's take off!

CUSTOMER 4: Oh Aunt? With all do respect, only the price?

SALESWOMAN: Boy, don't you see, you don't have means to buy in this boutique? Hey, security?

SECURITY: Hey you, don't you hear her talk? Hold it there!

CUSTOMER 4: There is nothing there, old man!

SECURITY: Shut up, give me your backpack! Give me your backpack!

CUSTOMER 4: There is nothing, there is nothing, old man!

SECURITY: Shut up! There is nothing from the store here. You go now! (*Dragging him outside*)

CUSTOMER 4: This is prejudice!

SECURITY: Prejudice nothing! Go now, go!

CUSTOMER 4: Prejudice is crime!

INTERVENTION FRAME 2 (*Virtual Joker*): What would you do if you were discriminated in a store by being a student of public school?

CUSTOMER 2: I am leaving this store. Student from public school has no chance here!

SALESWOMAN: It seems as if she has any money, ha..ha!

Another not well dress customer enters the boutique.

SALESWOMAN: Oh Saint, not again?

CUSTOMER 5: Good night, I would like to know the price of that sneaker please?

SALESWOMAN: Look? There is a sale upstairs; go there, go there?

CUSTOMER 5: I wanna know the price of the sneaker, can't I?

SALESWOMAN: Man, don't you realize you can't buy here?

CUSTOMER 5: But, lady? What is that?

SALESWOMAN: Security? One more here, look?

SECURITY: Again? I don't believe it! Brother, don't you hear her talking? Hold it there, quick!

CUSTOMER 5: Calm, calm! It is not like that!

SECURITY: It is not like that? Arms up, legs open and shut up!

CUSTOMER 5: Wait it there, wait it there!

SECURITY: Wait nothing, man!

The man shows the security guard a police ID and put a chain on his arms bringing him to jail.

CUSTOMER 5: You are in jail for abuse of power and prejudice!

SECURITY: But, it was not my fault, it was her fault, please, please? *With a crying voice.*

Appendix 3

Instruments of Data Collection

1st study Surveys at SYCC

Pre-activity Survey

What is your experience with personal computers?

On a scale of 1 to 5:

1 2 3 4 5

How many hours per day do you use it? What for?

Have you done any theater in school? If yes, which plays have you enacted?

Have you done theater outside of your school? If yes, for how long?

Is it easy for you to visualize solutions to personal struggles?

On a scale of 1 to 5:

1 2 3 4 5

Do you use these imagined solutions in your real problem?

Are you aware of the problems you have?

On a scale of 1 to 5:

1 2 3 4 5

Do you know how to solve them?

On a scale of 1 to 5:

1 2 3 4 5

Are you aware of the issues that exist in your community?

On a scale of 1 to 5:

1 2 3 4 5

Do you know how to solve them?

On a scale of 1 to 5:

1 2 3 4 5

Post-Activity Survey

Have you gained more experience working on the computer?

On a scale of 1 to 5:

1 2 3 4 5

Have you learned anything new about drama?

On a scale of 1 to 5:

1 2 3 4 5

How much have you learned about creating a play?

On a scale of 1 to 5:

1 2 3 4 5

Have you learned any new insights about working collaboratively?

On a scale of 1 to 5:

1 2 3 4 5

Does it make sense to create a digital play? Why?

On a scale of 1 to 5:

1 2 3 4 5

Does it make sense to perform a play on a virtual stage? Why?

On a scale of 1 to 5:

1 2 3 4 5

How is it different from putting a play together and performing on a real stage?

How easy was to work with VFT?

On a scale of 1 to 5:

1 2 3 4 5

Have you discovered how to solve your personal problems?
On a scale of 1 to 5:

1 2 3 4

Have you improved your ability to resolve community issues?
On a scale of 1 to 5:

1 2 3 4

Have you felt any difference in your communication skills? Do you think you can express yourself better now than before this workshop? Why or why not?

On a scale of 1 to 5:

1 2 3 4

What difficulties did you have with the tool? Please describe.

Was it an enjoyable experience? Why?

On a scale of 1 to 5:

1 2 3 4 5

Survey applied at 2nd and 3rd Study
(Both English and Portuguese versions included)

Child's Assent Form

Dear Participant,

You are invited to participate in a research study that will focus on whether a Theater and Technology program can help children better express and argument their ideas, as well as to improve their conflict resolution skills.

If you decide to participate in the study you will be given a survey about your previous experience with theater and computer before the sessions start. You will then attend eight two and a half hours workshops where you will participate in improvisation warm-ups, brainstorming of ideas to create a play, picture taking, drawing and creating a digital play. At the end of the eight sessions you will receive a similar survey in order to see how this program and especially how Virtual Forum Theater, the computer tool you will use to create the digital play, affected your artistic expression, argumentation and conflict resolution skills.

For your participation in this study, you will have access to your on-line play to share with your friends, one day lunch at Tufts Cafeteria and snacks at the end of each session.

There are no costs for participating in this research and you may choose not to participate in this study at no costs. There is no pressure to continue if you feel uncomfortable or unhappy with any aspect of the study. You may choose to stop at any time with no penalty.

Child's Assent:

I, _____, understand the details of the study and would like to participate. I understand how the study works, what I will do as a part of the study, and that I can withdraw at any time with no penalty.

Child's Signature

Date

Principal Investigator's Signature

Date

Dear students,

I am an interdisciplinary doctoral student at Tufts University. I am interested in technology, education and drama. I am creating software called Virtual Forum Theater (VFT) and want to know how VFT can help youth to exchange point of views, discuss their triumphs and struggles on-line in a safe environment.

VFT is a web based tool that allows you to create a digital play using images (digital or hand drawings and pictures), audio and video. You create your play, post it on the web and invite other students to watch and exchange ideas about it. During our time together in this Virtual Forum Theater Study (from now on VFTS), you will participate in creative drama that involves drama exercises, script improvisations, character building techniques, etc, as well as work on the computer to create, post on the web, and modify the digital play.

I would like to know if you are interested in participating in this program, and if yes, what kind of experience you have with drama, technology and how effective you consider yourself in solving conflicts. However it is not necessary to have any prior experience on theater or solving conflicts. If you do not want to participate in VFTS, you do not need to answer this survey, except for the first two questions. Your answer is confidential and anonymous, I will be the only person who has access to your answers and I will not attach your name with your answers (you do not need to write your name if you do not want to).

I believe you will be able to answer this survey in less than one hour, but if you need more time, the person handing it to you can wait.

I will use the answers from this survey to compare with the ones from the post VFTS survey and figure out how effective VFT is for you.

Thank you very much for your time and help with this initiative.

Yours truly,

Alice C. Mello Cavallo.

Pre Virtual Forum Theater Study (VFTS) Survey

Thank you for answering this survey and for helping us to evaluate this research. VFT will help you to learn about theater and to create a digital play using digital images, audio and video. You create the play, post on the web and invite other youth to watch and exchange ideas about it. The main goal of this study is to help improve your expressive abilities and conflict resolution skills.

1. Participating in the program

Let us know if you want to participate in the program and why or why not.

1.0 Would you like to participate in the Virtual Forum Theater Program for Youth?

Yes ____

No ____

1.2 Why? Why not?

2. Personal Information

Please tell us a bit about yourself (remember, this information is confidential).

2.1 What is your name?

2.2 How old are you?

2.3 Which grade are you in?

If you answered NO to question number 1.0 above, you can choose not to answer any of the questions from this point on, but I would appreciate if you do.

3. Theatre Experience

We would like to know if you have done theater (if you were in a play or in any drama program) before and if you like it.

3.1 Have you been involved in any play or drama workshop? Yes ____ No ____

Where and for how long?

Mark the place with an X and/or write the name of other place where you participated in any theater or drama activity. Write the period in number of years or months.

In school _____ Years/Months _____

Outside school _____ Years/Months _____

Other place _____ Years/Months _____

3.2 If you were in a play, which plays have you enacted (done)? How old were you in each play?

3.3 If you were in a drama program, could you describe what have you done?

3.4 Some people would like to be involved in theater, but are afraid or shy about being in front of an audience.

Do you fear the stage? Y____ N____

Do you consider yourself shy to go on stage?

Answer on a scale of 1 to 5, when 1 is a not shy and 5 is very shy:

1	2	3	4	5
Not SHY				Very SHY

3.5 Do you dream to perform on stage? Why or why not?

4. Computer experience

We would like to know if you have used a personal computer before and if so for what reasons.

4.1 What is your experience with personal computers?

Answer on a scale of 1 to 5, when 1 is not experienced and 5 is very experienced

1	2	3	4	5
Not experienced				Very experienced

4.2 How many hours per day do you use it? For what purpose?

Mark the activity that you use the computer for with an X and write the number of hours spent on that activity. If you use the computer for any other activity, write under Others.

Play computer games _____	Hours _____
Play internet games _____	Hours _____
Homework _____	Hours _____
Drawing _____	Hours _____
On-line chatting _____	Hours _____

Others _____ Hours _____
 _____ Hours _____
 _____ Hours _____

4.3 Do you use a word processor? Which one?

Mark with an X if the tool is Word, or write the name of another one you use.

Microsoft Word _____

Other: _____

4.4 Do you use a computer drawing tool? Which one?

Mark with an X if the tool is Paint, or write the name of another one you use.

Microsoft Paint _____

Other: _____

4.5 Any other computer tool that you want me to know? Please write their name below:

4.6 Would you like to use your hand drawings in the digital play and post on the web?

Why? Why not?

5. Conflict Resolution

Sometimes people can use improvisations to work out disagreements or problems; sometimes good computer tools can help with that as well. We would like to find out about problems that teenagers have and whether Virtual Forum Theater might be useful.

5.1 Do you have any relationship problems (difficulty in relating to one or more peers)?

Y ____ N ____ (If you answer NO, go to 5.4)

5.2 Are you aware of them?

If you think you have a problem(s) and you are aware of it (them), answer on a scale of 1 to 5, when 1 is a bit aware and 5 is very aware:

1	2	3	4	5
A bit				Very aware

5.2 Is it easy for you to visualize/imagine solutions to your personal problems?

Answer on a scale of 1 to 5, when 1 is not easy and 5 is very easy:

1	2	3	4	5
Not easy				Very easy

5.3 Do you use these imagined solutions to solve your real problem? How?

5.4 Every community or neighborhood has its strengths and its problems.

Are you aware of any problems that might exist in your neighborhood or school community?

On a scale of 1 to 5:

1	2	3	4	5
Not aware				Very aware

If you are not aware go to question **5.6**.

5.5. Reflecting on your neighborhood or school community, what problems come to mind?

5.6 I present two made-up scenarios below; you can answer both of them if you like, or choose one based on your gender or main interest and answer the questions that follow it. These are hypothetical situations and even if they are new for you, I would like you to reflect on how you would solve them. You can continue in dialog form (exactly like is written below) or give a narrative answer. Use an extra blank page if you like.

Bullying at school

Settings

Boys are playing Basketball in the gym during afterschool.

Characters

Nick, Michael and Saul

NICK

This is hard (shoots) I can never get this in!!!
(*Michael comes in*).

MICHAEL

Man you stink you.

The most pathetic person I've ever seen. This is how you shoot a ball (swishes it). Learn how to shoot dummy and get out of here and if you come back I'll kill you (walks away).
(*Nick walks up to Saul doing pull-ups*).

SAUL

I saw you out there. You were pretty good but Michael made you look like a moron.
(Saul jumps down). My arms they hurt; let's go shoot some hoops.
(*Michael comes back*).

MICHAEL

Kid, I thought I told you to get out. Now get out!

5.6.1 What would you do if you were Nick?

5.6.2 What would you do if you were Saul?

Tomboy!

Settings

One day at recess Susan was hanging out with a bunch of boys who were her friends. But then a group of popular girls came over and started tripping on her.

Characters

Susan, Luis, Tom, Nick, Angela, Christy, and Lisa

Angela

Susan, you such a tomboy!

Lisa

Yeah, like totally!

Christy

Just to let you know, you are so not one of us.

5.6.3 How would you react if you were Susan? What would you do if you were Susan?

5.6.4 What would you do if you were Christy, Angela or Lisa?

5.6.5 How would you react if you were one of the boys?

Post Virtual Forum Theater Study (VFTS) Survey

1. Learning

Let us know how much did you learn with this activity

1.0 Have you gained more experience working on the web?

Answer on a scale of 1 to 5, when 1 is none and 5 is very much:

1	2	3	4	5
None				Very much

1.1 Have you gained more experience working on the computer?

Answer on a scale of 1 to 5, when 1 is none and 5 is very much:

1	2	3	4	5
None				Very much

1.2 Have you learned anything new about drama?

Answer on a scale of 1 to 5, when 1 is none and 5 is very much:

1	2	3	4	5
None				Very much

1.3 How much have you learned about creating a digital play?

Answer on a scale of 1 to 5, when 1 is none and 5 is very much:

1	2	3	4	5
None				Very much

1.4 Have you learned any new insights about working collaboratively?

Answer on a scale of 1 to 5, when 1 is none and 5 is very much:

1	2	3	4	5
None				Very much

1.5 Have you learned anything ?

Answer on a scale of 1 to 5, when 1 is none and 5 is very much:

1	2	3	4	5
None				Very much

1.6 Describe what you have learned during this workshop.

2. Digital Play

Let us know your thoughts about digital plays.

2.0 Does it make sense to create a digital play?

Answer on a scale of 1 to 5, when 1 is Not Really and 5 is Very much:

1	2	3	4	5
Not Really				Very much
Why?				

2.1 Does it make sense to perform a play on a virtual stage?

Answer on a scale of 1 to 5, when 1 is No Sense and 5 is Very much:

1	2	3	4	5
No Sense				Very much
Why?				

2.2 How is it different from putting a play together and performing on a real stage?

3. The VFT tool

Let us know how effective VFT was for you.

3.0 How easy was to work with VFT?

Answer on a scale of 1 to 5, when 1 is Not Easy and 5 is Very Easy:

1	2	3	4	5
Not Easy				Very Easy

3.1 Did this project help you to see new ways of solving your personal problems?

Answer on a scale of 1 to 5, when 1 is Not at all and 5 is Very much:

1	2	3	4	5
Not at all				Very much

3.2 Did VFT help to improve your ability to resolve community issues?

Answer on a scale of 1 to 5, when 1 is Not at all and 5 is Very much:

1	2	3	4	5
Not at all				Very much

3.3 Have you felt any difference in your communication skills? Do you think you can express yourself better now than before this workshop?

Answer on a scale of 1 to 5, when 1 is Not at all and 5 is Very much:

1	2	3	4	5
Not at all				Very much

Why or why not?

3.4 What difficulties did you have with the tool? Please describe.

3.5 Did you enjoy using VFT?

Answer on a scale of 1 to 5, when 1 is Not at all and 5 is Very much:

1	2	3	4	5
Not at all				Very much

Why?

Queridos estudantes,

Sou estudante de um doutorado interdisciplinar na Universidade Tufts nos EUA e estou interessada em tecnologia, educação e drama. Estou criando um software chamado Teatro de Foro Virtual - *Virtual Forum Theater* (VFT) e gostaria de saber como o VFT pode ajudar a juventude a trocar pontos de vista, discutir seus triunfos e problemas em um ambiente *on-line* seguro.

VFT é um aplicativo baseado na tecnologia da internet que permite que você crie uma peça digital usando imagens (desenhos digitais, desenhos à mão ou fotos), áudio e vídeo. Você cria a sua peça, publica na internet, e convida outros estudantes para assistirem e trocarem idéias sobre a peça. Durante nosso tempo juntos, neste estudo do Teatro de Foro Virtual, (a partir de agora ETFV), você irá participar de um drama criativo que envolve exercícios dramáticos, improvisações, técnicas de desenvolvimento de personagens, etc, bem como, trabalhar no computador para criar, publicar na internet e modificar a peça digital.

Eu gostaria de saber se você está mesmo interessado em participar deste programa, e se estiver, qual o tipo de experiência que você tem com drama, tecnologia e quanto você se considera apto para resolver conflitos. Entretanto, não é necessário ter nenhuma experiência anterior com teatro, nem com resolução de conflitos. Se você não quiser participar do ETFV, não precisa responder este questionário, exceto as duas primeiras questões. Sua resposta é confidencial e anônima; serei a única pessoa a ter acesso às suas respostas e não associarei seu nome com elas. Aliás, você não precisa escrever o seu nome se assim o preferir. Acredito que você será capaz de responder este questionário em menos de uma hora, mas se precisar de mais tempo, posso esperar.

Usarei as respostas deste questionário para comparar com as respostas do questionário pós ETFV (depois do ETFV) e descobrir se o VFT deu um bom resultado para você. Muito obrigada por seu tempo e contribuição para essa iniciativa.

Sinceramente,

Alice C. Mello Cavallo.

Questionário Pré Estudo do Teatro de Foro Virtual (ETFV)

Muito obrigada por responder este questionário e por me ajudar a avaliar esta pesquisa. O VFT deve lhe ajudar a aprender sobre teatro e a criar peças digitais usando imagens, áudio e vídeo. Você desenvolve a peça, publica na internet e convida outros estudantes para assistirem e trocarem idéias. O objetivo principal deste estudo é ajudar a aperfeiçoar sua habilidade de expressão e resolução de conflitos.

1. Participação no programa

Diga se você gostaria de participar deste programa, porque sim ou porque não.

1.0 Você gostaria de participar no Programa de Teatro de Foro Virtual para Juventude?

Sim _____ Não _____

1.2 Por que sim? Por que não?

2. Informação Pessoal

Por favor, fale um pouco sobre você (lembre que essa informação é confidencial).

2.1 Qual o seu nome?

2.2 Quantos anos você tem?

2.3 Qual a série que você cursa?

Se respondeu NÃO para a pergunta número 1 acima, você pode escolher não responder nenhuma pergunta a partir deste ponto, mas eu adoraria e ficaria grata se você respondesse a todas as perguntas até o fim.

3. Experiência em Teatro

Gostaríamos de saber se você já fez teatro (se já esteve em uma peça ou em algum curso de teatro) e se gostou.

3.1 Você já participou de alguma peça ou curso dramático? Sim ____ Não ____

Onde e por quanto tempo?

Marque o local com um X e/ou escreva o nome de outro lugar que você tenha participado de algum teatro ou atividade dramática. Escreva o período em número de anos ou meses.

Na escola _____ Anos/Meses _____

Fora da escola _____ Anos/Meses _____

Outro local _____ Anos/Meses _____

3.2 Se você esteve em uma peça, quais peças já encenou? Quantos anos você tinha em cada peça teatral que encenou?

3.3 Se você já participou de um curso dramático, por favor, descreva o que fez neste(s) curso(s)?

3.4 Algumas pessoas gostariam de se envolver em teatro, mas têm medo ou timidez de se apresentarem em frente de uma platéia.

Você tem medo do palco? S____ N____

Você se considera tímido para subir no palco?

Responda numa escala de 1 a 5, onde 1 é nada tímido e 5 é muito tímido:

1	2	3	4	5
Nada TÍMIDO				Muito TÍMIDO

3.5 Você sonha em encenar em um palco? Por que sim ou por que não?

4. Experiência com Computador

Gostaríamos de saber se você já usou computador pessoal e com que finalidade.

4.1 Qual a sua experiência com PC's?

Responda em uma escala de 1 a 5, onde 1 é sem experiência e 5 tem muita experiência.

1	2	3	4	5
Sem experiência				Muita experiência

4.2 Quantas horas por dia você usa o PC? Para quê?

Marque a atividade com um X e escreva o número de horas gastas em cada atividade. Se você usa o computador para alguma outra atividade, responda em Outras.

Brinca com jogos do PC _____	Horas _____
Brinca com jogos da internet _____	Horas _____
Faz dever de casa _____	Horas _____
Desenha _____	Horas _____
<i>On-line chatting</i> _____	Horas _____
Outras _____	Horas _____
_____	Horas _____
_____	Horas _____

4.3 Você usa processador de texto? Qual?

Marque com um X se a ferramenta é Word, ou escreva o nome de outra que você use. Microsoft Word _____

Outra: _____

4.4 Você usa alguma ferramenta de desenho digital? Qual?

Marque com um X se for o Paint, ou escreva o nome de outra que você use. Microsoft Paint _____

Outra: _____

4.5 Você utiliza algum outro aplicativo? Por favor, escreva os nomes abaixo:

4.6 Você gostaria de usar seus desenhos na peça digital e publicar na *web*? Por que sim? Por que não?

4.7 Você gostaria de usar fotos suas na peça digital e publicar na *web*? Por que sim? Ou por que não?

5. Resolução de Conflitos

Às vezes a gente pode usar improvisações para resolver discórdias ou problemas; às vezes bons softwares podem ajudar também. Nós gostaríamos de saber quais tipos de problemas você enfrenta e se Teatro de Foro Virtual poderia ser útil.

5.1 Você tem alguma dificuldade em se relacionar com colegas da sua idade?

S _____ N _____ (Se sua resposta for NÃO, vá para 5.4)

5.2 Você está consciente dessas dificuldades?

Se você acha que tem algum problema e você sabe quais são as dificuldades, responda numa escala de 1 a 5, onde 1 é um pouco consciente e 5 é bastante consciente:

1	2	3	4	5
Um pouco				Bem consciente

5.2 É fácil para você visualizar/imaginar soluções para os seus problemas pessoais?
Responda numa escala de 1 a 5, onde 1 é não é fácil e 5 é muito fácil:

1	2	3	4	5
Não é fácil				Muito fácil

5.3 Você usa essas soluções imaginárias para resolver seu problema real? Como?

5.4 Toda comunidade ou vizinhança tem pontos fortes e fracos, bem como problemas. Você tem consciência dos problemas que possam existir em sua vizinhança (bairro) ou na sua comunidade escolar?
Numa escala de 1 a 5:

1	2	3	4	5
Não consciente				Bem consciente

Se você não sabe ou não é consciente de nenhum problema, vá para a questão **5.6**.

5.5. Refletindo sobre a sua vizinhança ou a sua comunidade, quais problemas lhe vêm à mente?

5.6 Abaixo, você encontrará dois cenários fictícios; você poderá ler ambos, se quiser, ou escolher um, baseado em seu interesse, e responder às perguntas que o seguem. Essas são situações hipotéticas e, mesmo que sejam novas para você, eu gostaria que você pensasse em como poderia solucioná-las. Você pode continuar numa forma de diálogo (exatamente como está escrito abaixo) ou dar uma resposta narrativa. Se necessário, use páginas extras.

Pirraça na escola

Local

Meninos jogando basquete no ginásio depois do período escolar.

Personagens

João, Pedro e Saulo

JOÃO

Isto é difícil (joga a bola em direção à cesta) Eu nunca consigo fazer uma cesta!!!
(*Pedro entra*).

PEDRO

Você fede cara!!

É a pessoa mais patética, que eu já vi. É assim que se faz uma cesta (acerta a bola na cesta). Aprenda a jogar, seu idiota e saia daqui. Se você voltar, eu lhe mato (sai de cena).
(*João se dirige a Saulo que está fazendo exercícios físicos tipo flexão*).

SAULO

Eu vi você jogando. Você estava jogando bem, mas Pedro fez você parecer um débil mental. (Saulo mergulha na flexão). Meus braços já estão doloridos; vamos praticar umas cestas.

(*Pedro retorna*).

PEDRO

Menino, eu lhe falei para você sair daqui. Agora SAIA!

5.6.1 O que você faria se fosse João?

5.6.2 O que você faria se fosse Saulo?

Menina macho!

Local

Um dia, no recreio, Joana estava com um grupo de meninos que eram amigos dela. Então um grupo de meninas populares encostou e começou a destratar-las.

Personagens

Joana, Luis, Tom, João, Ângela, Cristina, e Lia

Ângela

Joana, você parece um menino!

Lia

Isso, totalmente!

Cristina

Queremos lhe dizer que você não faz mais parte do nosso grupo.

5.6.3 Como você reagiria se fosse Joana? O que você faria se fosse Joana?

5.6.4 O que você faria se fosse Cristina, Ângela ou Lia?

5.6.5 Como você reagiria se fosse um dos meninos?

Questionário Pos Estudo em Theater de Foro Virtual (ETFV)

1. Aprendizado

Diga o quanto você aprendeu com essa atividade.

1.0 Voce ganhou mais experiência com a internet?

Responda num escala de 1 a 5, onde 1 é nenhuma e 5 é muita experiência:

1	2	3	4	5
Nenhuma				Muita experiência

1.1 Você ganhou mais experiência manuseando o computador?

Responda num escala de 1 a 5, onde 1 é nenhuma e 5 é muita experiência:

1	2	3	4	5
Nenhuma				Muita experiência

1.2 Você aprendeu alguma coisa nova sobre drama?

Responda num escala de 1 a 5, onde 1 é nada novo e 5 é muita coisa que não sabia:

1	2	3	4	5
Nada				Muita coisa

1.3 O quanto você aprendeu criando uma peça digital?

Responda num escala de 1 a 5, onde 1 é nada e 5 é muita coisa:

1	2	3	4	5
Nada				Muita coisa

1.4 Você aprendeu novas formas de trabalhar em equipe ?

Responda num escala de 1 a 5, onde 1 é nada e 5 é muita coisa:

1	2	3	4	5
Nada				Muita coisa

1.5 Voce aprendeu alguma coisa?

Responda num escala de 1 a 5, onde 1 é nada novo e 5 é muita coisa que não sabia:

1	2	3	4	5
Nada				Muita coisa

1.6 Descreva o que voce aprendeu.

2. Peça Digital

Diga o que você achou das peças digitais.

2.0 Faz sentido criar uma peça digital?

Responda num escala de 1 a 5, onde 1 é não faz sentido e 5 é faz muito sentido:

1	2	3	4	5
Não faz sentido			Faz muito sentido	
Explique porque faz ou não sentido para voce.				

2.1 Faz sentido encenar uma peça em um palco virtual?

Responda num escala de 1 a 5, onde 1 é não faz e 5 é faz muito sentido:

1	2	3	4	5
Não faz sentido			Faz muito sentido	
Porque?				

2.2 Qual a diferença entre criar uma peça digital e encenar uma peça num palco real?

3. O aplicativo VFT

Diga o quanto efetivo e útil o VFT foi para você.

3.0 Foi fácil usar o VFT?

Responda numa escala de 1 a 5, onde 1 é não foi fácil e 5 é foi muito fácil:

1	2	3	4	5
Não foi fácil			Muito fácil	

3.1 Este projeto lhe ajudou a aprender novas formas de resolver problemas pessoais?

Responda numa escala de 1 a 5, onde 1 é não me ajudou e 5 é ajudou muito:

1	2	3	4	5
Não me ajudou			Ajudou muito	

3.2 O VFT lhe ajudou a aperfeiçoar sua habilidade de resolver problemas comunitários?
Responda numa escala de 1 a 5, onde 1 é não me ajudou e 5 é ajudou muito:

1	2	3	4	5
Não me ajudou				Ajudou muito

3.3 Você sentiu alguma diferença em sua habilidade de comunicação? Você pode se expressar melhor agora do que antes dessa oficina?
Responda numa escala de 1 a 5, onde 1 é não e 5 é muito melhor:

1	2	3	4	5
Não				Muito melhor

Por que pode se expressar melhor agora? Ou por que não fez nenhuma diferença?

3.4 Este trabalho teve o objetivo de demonstrar novas formas de argumentação. Você acha ter aperfeiçoado sua forma de argumentar a fim de convencer outros da sua opinião?
Responda numa escala de 1 a 5, onde 1 é não aperfeiçoei e 5 é aperfeiçoei muito:

1	2	3	4	5
Não aperfeiçoei				Aperfeiçoei muito

Descreva ou de um exemplo de como VFT lhe ajudou a melhorar sua habilidade de argumentação.

3.5 Você achou VFT um ambiente seguro para trocar opiniões sobre temas de conflito?
Responda numa escala de 1 a 5, onde 1 é pouco seguro e 5 é muito seguro:

1	2	3	4	5
Pouco seguro				Muito seguro

Por favor, descreva porque você acha VFT mais seguro que um palco de verdade.

3.6 Você teve alguma dificuldade com o VFT? Por favor, descreva.

3.7 Você se divertiu usando o VFT?
Responda numa escala de 1 a 5, onde 1 é não e 5 é muito:

1	2	3	4	5
Não				Muito

Porque sim ou não?

Survey applied to the teachers during the 3rd study : Pre and Post

Questionário Inicial Para Professores - Teatro de ForumVirtual (VFT)

Querido(a) Professor(a),

Preciso da sua opinião sobre o aluno em questão:

Estou fazendo uma pesquisa sobre o Teatro de Forum Virtual (VFT) com alguns dos seus alunos, e desenvolvi algumas formas de avaliar o desempenho deles, e nesse processo o seu conhecimento sobre o(a) aluno(a) é fundamental para balizar a análise deles próprios e a minha, bem como tudo que tenho observado da participação deles no projeto.

Ficaria muito agradecida, se tiver tempo de elaborar uma resposta por escrito para as questões intituladas “porque sim ou porque não”, bem como exemplificar.

Obrigada,

Alice C. Mello Cavallo

1. Sobre seu aluno

1.1. Como você vê esse aluno? O que lhe chama atenção sobre ele(a)?

1.2. Você considera ele(a) tímido(a)? Porque sim? Ou Porque não?

1.3. Ele(a) se expressa bem em sala de aula? Poderia dar um exemplo?

Responda numa escala de 1 a 5, onde 1 significa se expressa muito mal e 5 se expressa muito bem:

1	2	3	4	5
Muito mal				Muito bem

1.4. Ele(a) argumenta bem as suas idéias?

Responda num escala de 1 a 5, onde 1 é argumenta muito mal e 5 é argumenta muito bem:

1	2	3	4	5
Muito mal				Muito bem

1.5. Você acha que esse aluno(a) resolve bem conflitos que acontecem em sala de aula? Porque sim? Porque não? Poderia dar um exemplo?

Responda num escala de 1 a 5, onde 1 é resolve conflitos muito mal e 5 é resolve conflitos muito bem:

1	2	3	4	5
Muito mal				Muito bem

1.6. Você acha que ele(a) é consciente dos problemas sociais da vizinhança ou da cidade de Salvador? Se quiser pode dar um exemplo no espaço abaixo.

Responda numa escala de 1 a 5, onde 1 é pouco consciente e 5 é muito consciente:

1	2	3	4	5
Pouco				Muito

Questionário Final Para Professores - Teatro de ForumVirtual (VFT)

Querido(a) Professor(a),

Por favor responda as perguntas abaixo relativas ao aluno:

Você sentiu alguma mudança neste aluno(a) nestes ultimos dois meses com relação a:

Argumentação de ideias: Sim ou Não ?

Responda num escala de 1 a 5, onde 1 é argumenta muito mal e 5 é argumenta muito bem:

1	2	3	4	5
Muito mal				Muito bem

Resolução de Conflitos: Sim ou Não?

Responda num escala de 1 a 5, onde 1 é resolve conflitos muito mal e 5 é resolve conflitos muito bem:

1	2	3	4	5
Muito mal				Muito bem

Habilidade de Expressão: Sim ou Não?

Responda numa escala de 1 a 5, onde 1 significa se expressa muito mal e 5 se expressa muito bem:

1	2	3	4	5
Muito mal				Muito bem

Survey developed by Prof. Marina Bers in 2006

Top of Form

You and technology

Below are some statements about your attitudes toward technology, please let use know how much do you agree with them.

	Descriptions	Strongly disagree			Strongly agree			Prefer Not To Say
		1	2	3	4	5		
1	When working with someone on the computer, I						<input checked="" type="checkbox"/>	

	make sure that they understand everything I am doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2	Learning about technology is easy for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I can express myself, my ideas, and my values by using the computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I am part of a virtual community on the Internet where I give and receive advice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I have met new people through the use of computers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	I can imagine new ways of using technology to make the world a better place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	I believe that by using new technologies people can find new ways to contribute more to their communities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Because of my technical skills, I can connect with people in many different ways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	It is important for me to teach others the things that I already know about computers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	I am able to create or design projects on the computer from an idea to a finished work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Descriptions	Strongly disagree		Strongly agree		Prefer Not To Say	
		1	2	3	4	5	
11	I feel confident that I can learn how to use a new computer program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	I can debug or fix computer projects or programs when something goes wrong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	I know that I can figure out how to create or design projects on the computer from an idea to a finished piece of work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	I know how to make computer projects (e.g., images, animations, songs, videos, robotic constructions) to express things that I value	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	I have found support groups on the Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	I use computers to connect with other people who think and feel the same way as I do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	I can contribute to my community using my computer and/or my technical skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	I know how to make or design my own projects with computers (images, animations, songs, robotic constructions, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	I feel confident that I can figure out how to use new features of a program on my own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20	I am able to learn computer applications that help me express myself in different ways	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Descriptions	Strongly disagree		Strongly agree			Prefer Not To Say
		1	2	3	4	5	
21	I use the computer to learn about the people who I care about	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	I actively use the computer to be part of different communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	I can imagine positive ways to use computers for our society	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	I have an advanced understanding of how a computer works	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	I know what is good and bad behaviors regarding the use of Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	I feel good about myself when using the computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	I am willing to help other people when they encounter technical problems or questions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	If I encounter something inappropriate online, I would alert others so they would avoid unpleasant experiences or exchange	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	I use Internet tools to stay in touch with people I know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	I know how to use the computer as well as, or better than my peers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	I respect established rules and appropriate uses of technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	I do not engage in behaviors that I deem inappropriate when using technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Você e Tecnologia

Abaixo estão algumas frases sobre computadores e tecnologia, por favor, deixe-nos saber o quanto você concorda com elas.

	Descrições	Eu discordo			Eu Concordo		Prefiro Não Dizer
		MUITO				MUITO	
		1	2	3	4	5	
1	Quando trabalho com alguém no computador, eu me certifico que a pessoa entende tudo que eu faço.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Aprender sobre computador é fácil para mim.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Posso expressar minhas idéias, a mim mesmo, e dizer o que eu gosto através do computador.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Faço parte de uma comunidade na Internet onde ajudo outras pessoas, ou obtenho ajuda delas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Tenho conhecido pessoas através do uso de computadores.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Posso imaginar novas formas de usar o computador para tornar o mundo um lugar melhor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Acredito que usando tecnologias dos computadores, as pessoas podem achar novas maneiras de retribuição às suas comunidades.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Por causa da minha habilidade com computador, posso conectar de muitas formas diferentes com pessoas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Para mim, é importante ensinar às outras pessoas as coisas que já sei sobre computadores.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Sou capaz de criar ou desenhar projetos no computador a partir de uma idéia ate o final do trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Descrições	Discordo fortemente			Concordo fortemente		Prefiro não dizer
		1	2	3	4	5	
11	Sinto - me confiante com a possibilidade de que sou capaz de aprender a usar um novo programa de computador.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Posso descobrir ou consertar projetos ou programas de computador quando algo está errado.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Sei que posso descobrir como criar projetos no computador a partir de uma idéia até o final do trabalho.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Sei como fazer projetos com o computador (por exemplo, imagens, animações, músicas, vídeos, construções de robótica etc.) para expressar coisas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	que gosto e acho que são boas						
15	Tenho encontrado grupos na internet que apoiam o que eu gosto.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Uso computadores para conectar com outras pessoas que pensam e sentem da mesma maneira que eu.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Posso contribuir com a minha comunidade usando meu computador e/ou minhas habilidades computacionais.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Sei como fazer ou arquitetar meus próprios projetos com computadores (imagens, animações, músicas, construção de robótica, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	Sinto - me confiante com a possibilidade de ser capaz de descobrir como usar novas funções de um programa por conta própria.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	Sou capaz de aprender programas de computador que ajudem a me expressar de várias formas diferentes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Descrições	<div> Discordo fortemente Concordo fortemente </div> <div> 12345 </div>					Prefiro Não Dizer
21	Uso o computador para aprender sobre as pessoas pelas quais eu me interessso.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Uso o computador para fazer parte de grupos e comunidades diversas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Posso imaginar boas maneiras de usar o computador para a nossa sociedade.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Entendo como computadores funcionam.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	Sei o que é bom e ruim ao usar a internete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	Sinto- me confiante quando uso o computador.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Estou disposto (a) a ajudar outras pessoas quando elas tiverem problemas com o computador ou perguntas a fazer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Se encontro algo ruim online, conto a outras pessoas a fim de que elas evitem experiências desagradáveis.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	Uso Internet para manter contato com pessoas que conheço.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30	Sei como usar o computador tão bem quanto, ou melhor, que meus amigos.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	Respeito regras e só faço coisas online que não sejam ruins.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	Eu não me engajo em comportamentos que acho nocivos quando uso o computador.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Journal de Bordo VFT

O quanto você tem gostado do VFT?

- ☐ Não usei
- ☐ Não gostei
- ☐ Gostei muito pouco
- ☐ Gostei um pouco
- ☐ Gostei
- ☐ Gostei MUITO

O que você tem feito com o VFT?



Quais sugestões você tem para uma nova versão do VFT?

Appendix 4

Important Transcripts of the 3rd study

Rotary

Excerpt # 1 (continuation of page 31 Chapter 8)

Researcher: Then once more and we will record it. This is an improvisation and everybody has to be attentive to interrupt and talk to the other at the right moment.

And they repeat pretty much the same dialog, but much faster.

Researcher: Who will control the recording?

Researcher: Tell me, what are you going to say before recording?

Adroaldo: Good morning everybody, I called this meeting here because the school head is charging us with something new and I want to know your opinion.

Researcher: Please be everybody here around the laptop to respond good morning all together.

Adroaldo talked to everybody in a leading role without being asked by me.

Adroaldo: Yes. I say good morning and everybody say good morning; I called for this meeting because the school head is asking for something new and I want to know your opinion. I ask them to do it once more and then they record.

Excerpt # 2 (continuation of page 33 Chapter 8)

Lillian interrupts: Ok, this sequence is too much.

Adroaldo interrupts: My God! Look at this? It will be ugly!!

Lillian: It is ugly; I did not like; sincerely...

Adroaldo: Ah, I don't find this good!

Lillian: I already saw too many images in this room. *Referring to the scene at the Gremio room.*

Adroaldo: But, is it saved, right?

Rebeca: No, it is not!

Lillian: You can throw in the trash!!!

Adroaldo: No, don't throw in the trash.

Lillian: But, you won't loose the photo, no you won't loose the photo ...

Adroaldo: Then take out only the ones you have added; go! *Talking to Rebeca.*

Lillian: And bring the others.

Through this discussion they are learning by doing the concepts of animation and adjusting these concepts with their own aesthetical taste, which highlight the importance of a technological object to reflect upon.

Rebeca: *To Lillian.* Wait beauty, I am writing. *Lillian reaches to the keyboard.*

Lillian: Argh! Why don't you fix it first?

Rebeca: What do I have to fix?

Lillian: Did you place it here? Place it here.

Rebeca: No, it is not to place it there, it was the teacher who put here because of the line; she left it like that far away. *She refers to the intentional space left between the images.*

Adroaldo: Wait, I can't see it because of the sun light; *referring to the computer screen (they were playing their "gremio" scene).*

Rebeca: Ask the teacher if it is necessary to write the whole line.

Lillian: Do we need to write the whole line, Alice?

Researcher: What? *Coming from the other side of the room.*

Lillian: The line, is it necessary to write it all in the sequence? Because it is not written, got it? The one from the "gremio", because at the classroom scene, we only wrote part of the line.

Researcher: It would be good. Now, have you added all the photos?

Lillian: Yes, all; look? (*Pointing to the screen where the photos are*), because we thought it would be too repetitive, it would become something and there is too many photos.

Excerpt # 3.1

Lillian: Good morning!

The two good students (CDF): Good morning!

Lillian (*to the two Patricinhas*): ihh, I don't know how they got here early....

Teacher: Good morning, class!!!!

Everybody: Good morning!

Farofa *enters*: Hey everybody, is everything ok?

Teacher: Always late!

Farofa: It is part of it. It is like this.

Tadeu *enters*: Hey teacher, is everything beautiful?

Teacher: Yes, beautiful! Humm, you cut your hair!

Patricinhas: Beautiful? Ihhhhh!!!

Farofa: Hey brother! (*to CDFs*) You only study, right? Always like that, right?

Tadeu says something to the Patricinhas, teases Lillian and they all talk something at the same time with one another.

Teacher: Silence, everybody! You should follow the example of Roberto and Lucy.

Tadeu: Where? You lost it!

Farofa (*to the teacher*): Look, they only study, study, they don't flirt; [they] don't do anything else, [they are] only at home. What example is this?

Lillian says something and others follow.

Teacher: All right, [this is the] end of subject. Let's get to what is needed. Roberto how was your weekend?

Roberto: [I was] working and studying a lot!

Teacher: Very well! And yours, Lucy?

Lucy: [I was] Studying, [and otherwise] at home....

Teacher: Good! And you, Tadeu?

Tadeu: [I was busy with] woman, drinks, parties

Teacher: Boy, you don't study, do you? Don't you get a book for at least 10 min?

Tadeu: I don't need to study.

Teacher: And you, girls? (*To the Patricinhas*)

Patricinhas: [We were at the] Club, shopping

Teacher: You need to study. The future is on your hands....

They all say something almost at the same time. Teacher asks the class to copy after her.

Farofa: (*to the good students*). You copy it for me, ok?

Teacher gives them an assignment, the cell phone of one of the Patricinhas rings, she gets up and leave the room to answer the phone.

Teacher (to Farofa): Roberto did the homework, see?

Farofa: So what?

When the Patricinha returns, Tadeu gets up, holds the CDF, Roberto and say to the teacher: Excuse me teacher, I need to get out a bit.

Teacher: You can't get out of the classroom, Tadeu!

Tadeu (*grabbing Roberto by the hand and pulling him*): It is really quick teacher....

Farofa gets up and go talk to Lillian. Tadeu beats Roberto and demands him to do his assignment and to go back to classroom without crying.

Gremio scene:

Farofa: Good morning!

Everybody: Good morning.

Farofa: I scheduled this meeting here today, because the school principal is demanding for something new, a new project. So, I want you all from the gremio to give your opinion on what to do, what to invent, something.

Each one gives an opinion....

Farofa: So you think this, what about you, what do you think?

...

Excerpt #3.2

Creating Characters

3rd session

Irene: My name is Irene, I am the teacher of 3rd year of high-school. In my classroom I am very dynamic; I try to be always updated in order to pass down knowledge to my students; [I am] always trying to balance the group, because there are always students with different profiles ... so.... *Researcher*

Researcher: What do you like to do?

Irene: I love to read, write and to update myself; on the weekends, I go to the beach, pool and sometimes to the movie in order to follow up what is going on in the media.

Researcher: How old are you?

Irene: I am 35 years old.

Researcher: Single or married?

Irene: I am single looking for a boyfriend.

Tadeu: My name is Fabio...pause..

Researcher: What does Fabio like to do?

Tadeu: I like parties; I am hooked by my car; I like to go out with the “Patricinhas” (girlish) of the class. I like to be snobby as well, especially to our nerd classmate

Researcher: When you are not in parties, what do you like to do the most?

Tadeu: ah, I like to hang out at home; I sleep; I go to the pool at my house; I enjoy the house and often I invited my friends to the house to parties.

Researcher: How old are you and which grade are you in?

Tadeu: I have 18 years old and I attend the senior year at high school.

: What are you going to do when you finish high-school?

Tadeu: Man, I want to give up, because my father is a business man and I don’t need to study any more.

Lillian: Look how fancy?

Tadeu: Exactly, school does not work for me; it only works for people who need it, but since I don’t need it, I don’t have to continue.

Researcher: Are you going to work with your father?

Tadeu: Yeah, I think so; I am a partner of him already, I am only waiting to finish high school; I think I will pay to pass, I will buy the high school diploma, so I can start working with my father.

Researcher: How do you treat the nerds in the school?

Tadeu: Man, the majority I want out of my way, but the one in my classroom, I bully him. I beat him to do my homework and he better do it. He is obliged to do my homework, right? (looking at the nerd).

Rebecca: My name is Patricia, I am 17 years old. I like to enjoy life. I am girlish; nobody likes me, but I speak to everybody....I also like partying, I love shopping and buying; this make me very livened up; I also think about my future; I would like to be a model, a professional one; and in the classroom, I like to talk, I talk to the girls about shopping.

Excerpt # 6.1

Interview

I asked them what they think from VFT so far:

Adroaldo: I find it cool. I want to see after it is finished.

Researcher: But up to know; do you like it? Is it easy to manipulate? Did you have any difficulty?

Adroaldo: I like it...it is easylet me see...no, it is bad when we make a mistake and we have to start it all over again.

Researcher: What do you mean? Do you have to record again?

Adroaldo: Yes.

Lillian: I don't like the part of the photos, because it looks as a big window, I don't know...

Researcher: What about you Tadeu?

Tadeu: I find it interesting, cool too; sweet, I like it.

Researcher: But, did you find hard to manipulate it?

Tadeu: No, no.

Irene: I found it a bit complicated, because when you make an error, you have to go back.

Researcher: When do you make a mistake recording?

Irene: Yes.

Researcher: What did you want? Did you want just to record it over?

Irene: Yes.

Excerpt # 11.2

Interview:

Researcher: Why do you like Internet?

Lillian: Because it is a way of entertainment, to meet people, to see different people from other worlds. The utility piece of the net is to do homework.

Researcher: What do you do when you go on-line?

Lillian: It depends on what...look, there are days that I go to the café to do school work; and there are days that I use just surf; I login to orkut; orkut is a national mania.

Researcher: Do you meet lots of people at orkut?

Lillian: Of course! We meet! One enters in the orkut [account] of one, from there, one enters in the orkut of another, and another, another....I do that all the time.

Researcher: Is it more or less like a research that you do on orkut? Going into people's site [account], looking at each one?

Lillian: Yeah, like this; I look at the profile, what the person likes and dislikes.

Adroaldo says that the number of images extracted from the video reached fifty, "it is already in 50 and I am not even half way through the video clip. Can I advance like this?"

Researcher: You don't need to choose the shots very close to each other; look out for the gestures.

Researcher: What do you think of the idea to get in a chat with the group from Aplicacao to discuss the play?

Lillian: I find it cool, because it is always good to listen to opinions: be them good or bad; to improve anything that needs to be improved; I think it is interesting; it is a different way.

Researcher: Will it be something different in the use of the internet?

Lillian: Not in the use of Internet, because this thing of chat we have, but I am talking about to discuss something about theater on the Internet

Researcher: [To discuss] a specific theme?

Lillian: Exactly!

Researcher: Do you think *VFT* would be useful for teenagers who like theater?

Lillian: I think so; I liked *VFT*; I only did not like to make the faces, because it was ugly. Outside of that, I liked it.

Researcher: Do you think *VFT* is useful in which sense?

Lillian: : For example there were scenes that we did not take enough pictures; It gave the opportunity for us to extract them from the video tape, I did not know that. It would be of interest for the fact that manipulating computer by itself arouses interest, because nowadays when one talks about computer, the other is already there seated, ready for it; therefore just the fact that *VFT* uses the computer, it hooks everyone.

Researcher: And [what about] the fact to be able to see the play at home, at the computer?

Lillian: Look, I find it interesting....and good, but I am not one of those...I like to go out....To watch is fine, but I don't think one should keep [doing] only this, get it? I think it is also interesting for the person to go to the Theater and watch it there, but not to stick to one rule and only watch on the computer.

Researcher: Yeah, of course, only if one could not go to the theater....

Lillian: Exactly.

Researcher: Do you think that a shy person who likes to do theater would benefit from *VFT*?

Lillian: No, if she/he is very shy, but more or less shy then yes, because in the computer she will interact with other people in any way, so for a VERY shy person, independent of being in the computer, I don't think it would work well, she would not agree to do it, get it? I think that is a no, that's it.

Researcher: Ok!

Researcher: Why do you like Internet?

Adroaldo: Most of the time, I only go on-line to access orkut. MSN is in second place; it is more orkut, really.

Researcher: What do you do at orkut?

Adroaldo: I send messages to my friends. I see the profile of friends, I update my profile

Researcher: How often do you update your profile?

Adroaldo: Every month I add new photos and change a few things. For example you can write something about you, or add drawings; I add drawings...Most people I know virtually are from Salvador, but I don't meet them personally.

Researcher: What else do you do in the Internet?

Adroaldo: Sometimes, so rarely, I do some school work. I search google for images and something that I want to know.

Researcher: Do you think you read more because of the net & google?

Adroaldo: I read little, once I see the text is too long, I skip it...Sometimes I get interested, but when it is too big, I look at the images and that is all.

Researcher: What do you think of the idea to get in a chat with the group from Aplicacao to discuss the play?

Adroaldo: It will be very interactive; we can accept their critique, their compliments.

Researcher: Do you think this tool I created to make animation has any utility?

Adroaldo: Yes, it has for the play. For the play it has a lot. I always saw these little windows that has like this (he makes a gesture)...it can only be with a message; *VFT* is

interesting, interactive, we can mess around, change if it is wrong, back and forth, we make it again....

Researcher: Do you do theater in school?

Adroaldo: I never did.

Researcher: Do you like theater?

Adroaldo: I like.

Researcher: Do you feel ashamed to get up in stage?

Adroaldo: No, [it is] like that: it always give you a coldness on the stomach, but we get over it; no shyness, no; I like.

Researcher: Do you think that a shy person who likes to do theater would benefit from VFT?

Adroaldo: Very; because we are doing a closed theater; the people will be here, but everything will be close, so I don't think she will be ashamed when the group is here together, because she will know the people. At the beginning is a bit hard, but then she gets to know everybody and it becomes easier; and this is very useful for the shy people who are afraid of public, because they record it.

Excerpt # 11.3

Tadeu and Adroaldo were creating an interruption frame and I came over to look at it. I read the frame and stopped at the word "right (certa)" as if there were something missing, then Tadeu taught it was wrong and said: certo (masculine word for right); I questioned the word "attitude".

Adroaldo said with certainty, "certa".

So, I asked if there would not be a question mark after the word "certa" and Adriano answered: I did not finish yet; do you think it is good like that? Because I thought like that: how would you act if you were the teacher? But, she (Rebeca) already did this.

Excerpt # 14.1

1st Improv

Adroaldo: Good morning, can you tell me the price of this snicker, please?

Saleswomen: Ah, the one on sale? You can go look....

Adroaldo: It is not the sales one no dear! It is really that one.

Saleswomen: Stop touching me!

Adroaldo: Why can't I touch you?

Adroaldo: I do not understand, please what is the price of the snicker?

You are the saleswoman of this store, so you can tell me the price of this snicker.

Saleswomen: Look at there, go there, go there....

Adroaldo: How much is the snicker, say it? You are working here; how much is this snicker that is all what I wanna know?

Saleswoman: Security, please?

Security: Go away! Can't you hear?

Adroaldo: Calm down! I 'm going to issue a claim at Procon...

2nd Improv

Adroaldo: Good morning. How much is that snicker, please?

Saleswomen: Look it there on the sales area, look?
 Adroaldo: I don't want to know the price of that one. I want to know the price of THIS one here. Can you inform me, please?
 Saleswomen: Security, please?
 Adroaldo: How much does this snicker cost?
 Saleswomen: Security?
 Adroaldo: How much is the snicker?
 Security: Let's go, can't you hear her speaking, no? Let me see your backpack?
 Adroaldo: I only want to know the price...
 Security: LET ME SEE YOUR BACKPACK!
 Adroaldo: Calm, Mr., calm! I only wanna know the price of the snicker! No, what is this? You are messing everything there (pointing to his backpack)...
 The security guard pushes Adroaldo out while Adroaldo says "I only wanna know...I will open a claim at Procom (an agency for small claims), hear me? I only wanna know the price of the snicker!!!

Excerpt # 15.1

During our discussion of what they would do to solve the conflict between neighbors, Adroaldo knocks on the table pretending he is knocking at his neighbor door and starts enacting how he would talk to her about the loud noise.

Researcher: If you chat with Kabum's kids at the on-line chat, what will you suggest to them?

Adroaldo: I would say, look baby, you give more enthusiasm next time, ok? Because you say like this, "I turn down the volume when I want, the ones who don't like it, go away".

Lillian: I never saw anyone discuss like that, did you?

Adroaldo: I think she needs to put more enthusiasm (*he delivered this line with real enthusiasm in his voice*); "I turn down the volume when I want, the ones who don't like it, go away."

Lillian: [Someone] who lives in the Coquete (*nickname of Adroaldo's neighborhood*) understands it very well (*teasing Adroaldo who lives there*).

Adroaldo: [You] understand...(*they are all laughing*)...A neighbor who makes tons of noise ...(*he prepares the background to his enactment*)...*He started knocking on the table as if he was knocking on a door and said: good night, Mrs., come here, don't you have consciousness? Don't you know that someone also wants to watch TV, one need to concentrate; you keep this stereo on the whole day; I would not mind on the weekends, I don't know, in the mornings, but the whole day? I can't stand it any more; either you will give a solution to it, or I can open a claim, you know? Do you know that after 10pm during the week, we can't have the stereo loud anymore? Aren't you aware of this, Mrs.? Argh, I would knock at her door and make her conscious of it. I could call the police after her, after 10pm, you know?*

Lillian: uhum

Researcher: It is good for you to say it to the kids, because they are not aware of this law of silence.

Lillian: I would warn her first, if she did not stop and told me to go away, I would put her inside of the police trunk, then she would see....I would call a number; I forgot the name of the police operation?

Tadeu said the name of the operation, but I could not hear it.

Lillian: It is something like that; I would denounce her, I would tell her that the police would get her on the doing and she would have to pay a fine.

Adroaldo: On the weekend is ok.

Researcher: Which is the phone?

Lillian: Ah, I don't remember, but you only need to call...

Tadeu: 102.

Researcher: 102?

Lillian: Yes, Telemar [the phone company]

Adroaldo: You call the police, my dear, the 190, it is a lot easier.

Researcher: What is your suggestion, Tadeu?

Tadeu: Man, one needs to become conscious of the time, not to listen to music the whole day long with loud volume, very loud....

Researcher: How can you manage to make this neighbor conscious of that?

Tadeu: How do you mean?

Researcher: How would you do? Screaming? More or less as Adroaldo suggested? Which strategy would you use?

Tadeu: Man? To be what he said?

Researcher: No to make the neighbor conscious; how would you approach? With rudeness, kindness, very educated?

Tadeu: Man, with a lot of education, right? Because he is the one wrong with the loud speaker....I would treat with education, I would excuse myself that this would not happen any more.....

Researcher: No, you are talking with the neighbor who makes the noise....

Tadeu: Ah, I got confused; if he would not stop at the first time, I would talk regular, but at the second time, I would take my actions, I would open a complain about him.

Researcher: What about you, Rebeca?

Lillian: Hum, look at her face?

Rebeca: I can't say anything, because in my own house there is a certain person who keeps the stereo very very loud, then when people complain, she tells them to have patience and leave, so I can't tell anything.

Lillian: There were I live, I had a neighbor who used to test the stereo of his car all the time, so then he would have the volume up on the sky; we would talk to him and he would put it down at that moment

Lillian gives a long example of a real situation. And then we changed subjects.

Lillian: Imagine, all the time asking for something?

Researcher: I am serious; how would you solve this situation of your neighbor always throwing trash and asking you for something?

Adroaldo: I would call for a talk and say, "I can't give you anything"

Lillian: I take this rude attitude away from my grandma, because my grandma is all like "you have to give today, because today she is asking, but tomorrow you might need to ask", she is like that, so if I want to say something harsh, it has to be hidden from her; and with the trash, my grandma is love and peace, she says "clean it up my daughter", I become angry....but my grandpa, no, he says," throw it there, throw it there, throw it back"; then I like it and I throw everything back; because at my house we have an alley between the houses. The house is long [and] so the other one; several houses are rented

ones. Our land is the same size as our neighbor, but we have three other floors on top and my aunt's house is on the back; the neighbor has her own alley and we have ours, but she throws her stuff into our alley, her trash bags, empty packs even old clothing is there....

Researcher: So how do you solve this situation?

Lillian: How do I solve it? My grandma asks me to clean it up for the neighbor.

Rebeca: There is no solution, she shuts up and clean it well.

Lillian: Yes, my grandma is all "zen" (a very calm and good person), but if it were me, I would throw the trash where it belongs, back to the neighbor.

Researcher: Any other suggestion on how to solve this problem?

Lillian: If talking does not change anything?

Adroaldo: I would call for a talk....

Lillian: But if talk does not help, these people are uneducated...

Adroaldo interrupts: You come to my house, ask for food, beside asking for food, you still throw trash here, my lady? Thank you very much, do you see? Because we help, but that is what we receive back in the face! So, this is like that, thank you. I would call her to talk.

Adriano is heated up, he has emotion in his enactment. The discussion was really meaningful to them, despite the play had been made by 11 years old.

Lillian: Is this what happens at Coquete (a neighborhood), ahn?

Tadeu: Coquete....*he laughs.*

Adroaldo: No, it does not happen.

Lillian: [Does it happen] In the "baixa do tubo"? (*Another neighborhood*)

Adroaldo: [You] understand it, I don't even live at Baixa do Tubo.

Lillian: All right!

Adroaldo: I ...there, it is like that, we ask our neighbor, "Neighbor, lend me please a tiny bit of salt?"...

Lillian: Salt, man?

Adroaldo: Then the neighbor says, "lend me the sugar", so I come and say" lend me the iron..."

Lillian: Man?

Adroaldo: It is an exchange, got it? One lends to the other....it stays in community, but it is cool...

Researcher: This is good, it is an exchange, but the situation presented by the play is not an exchange, so then?

Lillian: For me the best is talking, but it almost never solves it.

Researcher: But if the talk does not solve it, what should we do?

Lillian: I don't know if there is any law for dirtiness...

Adroaldo: There is none. I would stop talking to them and would not lend them anything anymore.

Lillian: That's it Adroaldo...this is a good solution... (*Adroaldo claps*) because with this uneducated people, you stop talking... (*Rebeca interrupts her*).

Rebeca: I would not give any answer, because the best answer is the one we don't give.

Researcher: Ok, you stop lending stuff, but what about the dirt?

Rebeca: Ah, the dirt, teacher...I would have a dialogue with the neighbor, I would talk to her, because if the dirtiness continues in front of my door, I would have to open her door and put the dirt in there.

Researcher: Exactly how the kids did in the play?

Rebeca: Yes, I would do that.

Lillian: Then my grandma says, "Ignorance should not be paid with ignorance"

They all laugh.

Researcher: She is right, but then what should one do? You have to clean for the rest of your life, right?

Lillian: And all comes back to me? This is the most interesting....

Researcher: Then when you go to talk to these kids on the chat, you will clap to the solution they gave to throw the trash back, right?

Adroaldo: No, off course not.

Lillian: I think that first she should talk, but it did not solve, then? But, it would become a war and it would not have an end, because they would throw trash from on side to the other, and it would stay like that, but ...

Adroaldo: I would get in like that, if talking would not solve it, I would get in like this and call his/her attention, and say: "so man what's up? You come here and you don't have anything to eat, I give you cookies, I give you juice and you rather make my door dirt? What is that? ;" then if that would not solve it, I would not to talk with the neighbor anymore and would not give anything. And if he/she continued to throw trash on my space (*he clapped*), "what is this? Let's stop it!" Then I could really close myself.

Researcher: Is there no other solution?

Tadeu: Not for me.

Lillian: [Is it] Problematic?

Researcher: What about to mobilize the neighborhood and have other people talking together?

Lillian: Yes, but look, understand not everybody...

Adroaldo: No, the neighbors don't have anything to do with it.

Lillian: Everybody will say: "This is not with me, so why do I have to get involved with this story, if I have nothing to do with it?" Get it?

Adroaldo helps Lillian on what she was saying and lets escape, "and there is nothing to do"

Lillian: It is that story of in someone else's eye (*she laughed*) it is like punch! Something likes that.

We have an expression in Brazil that says: "hot pepper in someone else's ass is like fruit punch!", she was probably shy to say that as it is, on the other hand if someone wants to make the expression polite uses eye instead of ass.

Adroaldo: If it were happening two problems like that, one problem like that among two neighbors and one would call me, I would say: "look this is not with me, so you solve your cucumber (*which in this case means problem in Portuguese*)."

Lillian: And why get involved in other people problem, right?

Researcher: Then, this is the path, right?

Excerpt # 16.1

Discussing Aplicação's VFT play:

Adroaldo: What did they do, I did not understand the solution?

Lillian: They thought it was better to respect one another; the two groups wake up and see that it is not worth to be fighting, because each one has an opinion; it is what I saw.

Adroaldo: But that does not always happen like that...

Lillian: Yes...

Adroaldo: Sometimes only one group wants reconciliation...

Lillian: And not the other....

Adroaldo: Yes, and the other does not want; it is difficult when both don't want piece, especially in this case where the rock'roll group wanted to beat the "pagodeiros" (people who are fan of "pagode", a Brazilian music style), they do not want reconciliation, the "pagodeiros" is the one who want piece.

Lillian: And they might get beaten up.

Adroaldo: exactly

Rebeca: It is a lack of respect

Researcher: Aplicação group made a version of the issue brought up by you guys, that was the fight between groups in the school, and the lack of respect; but their response was that one does not need to like "pagode" or rock, but need to respect the choice of the other... it's a bit utopist, but this is their solution, the respect...

Lillian: Not everybody is cool like that, right?

Researcher: For sure, but then what to do when one does not have this thinking?

Lillian: Man?

Rebeca: It comes a moment where people start being aggressive

Researcher: Do they have to start being aggressive?

Lillian: No there are people...

Rebeca starts explaining her line of thought, but it is so low that I can't hear from the tape, only a few excerpts: ... I would listen to people's opinions ...

They start talking about a classmate and entered the realm of gossip.

Researcher: Yes, but coming back to our topic, is there any other solution if the two groups don't want peace?

Adroaldo: It will continue with this thing, because I think....

Researcher interrupts: But the group who wants respect and piece, do you think they will continue fighting then?

Adroaldo: No, the group will become each time more depressed...

Lillian: He will try to avoid, but it always come to a point when the person won't handle the pressure...

Adroaldo: Or they will get to a point when they will want to talk...

Researcher: But if we always think like that, you always come to this point, "it will be a moment when one can't handle the pressure"

Lillian: But if this is the true?

Researcher: Well, you have to try alternatives, otherwise....

Lillian: But we can't stand to be "shut"

Rebeca: We can turn our face back and leave, there!

Lillian: But if there is a situation, the person does not manage to escape of it all the time, I don't know...

Researcher: In one moment you stop to talk, right?

Lillian: But that what happened, in a first moment everybody stop to talk, " this is not working, we have to respect and bla, bla, bla"...but there is always one against it...

Adroaldo: But it will not work the “we want to talk”, there is a point when the other does not want...

Lillian: It is a fact of ignorance...

Adroaldo: It does not work if she does not like my face, everything that I do, she messes up, then I speak up and ask what is going on? Why are you acting like this? Then she will not want to talk, she will continue doing the same thing...








Researcher: But if you act like a Zen (very calm) person, always Zen until the person gets tired, she will never manage to upset you....














Adroaldo: This is true; because one person is teasing us and we don't care, then the person gives up the teasing, because she sees we don't pay attention; I don't know....







They almost always need to go back to a personal story they know in this case it was about tolerance.

Excerpt # 17.1

Kabum/Rotary on-line










- at 10:44am (December 05)
- *Adroaldo* has joined the conversation
- at 10:44am (December 05)
-  Adroaldo
- hi
- at 10:44am (December 05)
- *NOELIA* is now known as *Noelia/Tania*
- at 10:44am (December 05)
-  Adroaldo
- where is Mateus, Danilo
- at 10:45am (December 05)
- *Alice* has joined the conversation
- at 10:45am (December 05)
-  LUCIA
- it is a lie
- at 10:45am (December 05)
-  Noelia/Tania
- are you the boy from roteri
- at 10:45am (December 05)
-  Adriano
- which conversation is this one????
- at 10:45am (December 05)
-  LUCIA
- hi adriano
- at 10:45am (December 05)
-  Noelia/Tania
- what ? Adriano ?
- at 10:46am (December 05)










-  Adriano
- yes, that's me
- at 10:46am (December 05)
-  Adriano
- hi
- at 10:46am (December 05)
-  Noelia/Tania
- is alice there?
- at 10:46am (December 05)
-  Adriano
- yes
- at 10:47am (December 05)
-  Alice
- The discussion now should be about the plays of virtual theater, ok?
- at 10:47am (December 05)
-  LUCIA
- hi alice is here
- at 10:47am (December 05)
-  Alice
- I am
- at 10:47am (December 05)
-  Alice
- only for a little bit
- at 10:48am (December 05)
- Adriano is going to say what they discussed here about the issues presented by the noisy neighbor.
- at 10:49am (December 05)
-  Adriano
- which play do you make????
- at 10:49am (December 05)
-  Noelia/Tania
- adriano what did you find of our play?
- at 10:51am (December 05)
-  Noelia/Tania
- our play is the one about the noise and the trash
- at 10:51am (December 05)
-  Alice
- Is Marcelo gone?
- at 10:52am (December 05)
-  Noelia/Tania
- no, Danilo closed the program




- at 10:52am (December 05)
- he is here
- at 10:53am (December 05)
-  LUCIA
- adroaldo, how is your play going?
- at 10:53am (December 05)
-  Alice
- tell him to log on
- at 10:53am (December 05)
-  Noelia/Tania
- Danilo is gone
- at 10:53am (December 05)
-  Adriano
- we already finished it
- at 10:53am (December 05)
- I loved it
- at 10:54am (December 05)
- and you ? what did you find from our play?
- at 10:54am (December 05)
- it was a while
- at 10:54am (December 05)
-  Alice
- Tell Marcelo to log in
- at 10:54am (December 05)
-  Adriano
- what about your play???
- at 10:54am (December 05)
-  LUCIA
- me too
- at 10:55am (December 05)
-  Adriano
- the resolution of your play could have been given through the law of silence
- at 10:55am (December 05)
- do you know?
- at 10:55am (December 05)
- ?????
- at 10:56am (December 05)
-  LUCIA
- no
- at 10:56am (December 05)
-  Noelia/Tania
- Marcelo can't manage to start the program
- at 10:57am (December 05)

-  Adriano
- this law says that after 10pm one can not have the sound loud any more
- at 10:58am (December 05)
-  Alice
- But what to do when the neighbor has the strident speaker before 10 pm?
- at 10:59am (December 05)
-  Noelia/Tania
- we have to take our own solutions.
- at 10:59am (December 05)
-  Adriano
- call the police
- at 10:59am (December 05)
- it is the law
- at 10:59am (December 05)
- if it is law, let's fight for our rights
- at 10:59am (December 05)
-  LUCIA
- i need to take a decision
- at 11:02am (December 05)
- *Alice* has left the conversation
- at 11:04am (December 05)
-  Adriano
- does somebody want to talk about the plays ??????????
- at 11:04am (December 05)
-  LUCIA
- I knew it were you
- at 11:05am (December 05)
-  Noelia/Tania
- adriano let's talk?
- at 11:06am (December 05)
-  Adriano
- hi
- at 11:06am (December 05)
- what role did you have on your play?
- at 11:06am (December 05)
-  Noelia/Tania
- we loved your play, who was your character?
- at 11:07am (December 05)
-  Adriano
- I was the "sacizeiro", the rebel student that argue with the teacher
- at 11:08am (December 05)
- *LUCIA* has left the conversation
- at 11:08am (December 05)

-  Adriano
- i also made that annoying voice of the girl who was a good student.
- at 11:08am (December 05)
-  Noelia/Tania
- the snobby girl;Tania was the teacher
- at 11:08am (December 05)
-  Adriano
- ah yes
- at 11:09am (December 05)
-  Noelia/Tania
- you were “farofa”
- at 11:09am (December 05)
-  Adriano
- you’re talking on your play?
- at 11:09am (December 05)
- yes
- at 11:09am (December 05)
-  Noelia/Tania
- it was cool and funny
- at 11:09am (December 05)
-  Adriano
- I was “farofa”
- at 11:10am (December 05)
-  Adriano
- did you like it???
- at 11:10am (December 05)
- and what character did you do?
- at 11:10am (December 05)
-  Noelia/Tania
- it was d+
- at 11:10am (December 05)
- loved
- at 11:11am (December 05)
-  Adriano
- thanks
- at 11:11am (December 05)
-  Noelia/Tania
- I am waiting an answer
- at 11:12am (December 05)
-  Adriano
- your play was also funny
- at 11:13am (December 05)

-  Noelia/Tania
- I do the snobby student;Tania is the teacher
- at 11:14am (December 05)
-  Adriano
- I know
- at 11:14am (December 05)
- *Lucia* has joined the conversation
- at 11:14am (December 05)
- *Iris* has joined the conversation
- at 11:14am (December 05)
-  Adriano
- the girl who made the teacher is here
- at 11:15am (December 05)
-  Noelia/Tania
- iris how are you?
- at 11:15am (December 05)
-  Iris
- try to talk to her
- at 11:15am (December 05)
-  Noelia/Tania
-]
- at 11:15am (December 05)
- ok
- at 11:16am (December 05)
- don't understand
- at 11:16am (December 05)
- iris
- at 11:17am (December 05)
- are you there?
- at 11:18am (December 05)
- *Adriano* has left the conversation
- at 11:18am (December 05)
-  Iris
- when I said to talk to her is giving opinion about your play
- at 11:18am (December 05)
- I was the teacher
- at 11:18am (December 05)
- only me, farofa and alice
- at 11:18am (December 05)
-  Noelia/Tania
- ha
- at 11:19am (December 05)
-  Lucia
- hi iris I am Lucia

- at 11:19am (December 05)
-  Noelia/Tania
- i am Tania; I was the teacher
- at 11:20am (December 05)
- *Adroaldo* has joined the conversation
- at 11:20am (December 05)
-  Lucia
- where is Adroaldo
- at 11:21am (December 05)
-  Adriano
- hi
- at 11:21am (December 05)
-  Noelia/Tania
- I liked you Adroaldo
- at 11:22am (December 05)
- just to talk
- at 11:22am (December 05)
- like a friend
- at 11:22am (December 05)
-  Adriano
- I am already sleeping
- at 11:22am (December 05)
- *Iris* has left the conversation
- at 11:22am (December 05)
-  Adriano
- good
- at 11:22am (December 05)
- I know
- at 11:23am (December 05)
-  Lucia
- Noelia liked Adroaldo
- at 11:23am (December 05)
-  Noelia/Tania
- don't be lazy
- at 11:23am (December 05)
- *Lucia* is now known as *iris*
- at 11:23am (December 05)
-  Adriano
- I got a problem here
- at 11:23am (December 05)
- I have to quit
- at 11:23am (December 05)
- xauuuuuuuuuu!!!!!!!!!!!!
- at 11:24am (December 05)

-  Noelia/Tania
- I'm sad
- at 11:24am (December 05)
- *iris* is now known as *adri*
- at 11:25am (December 05)
- *Adriano* has left the conversation
- at 11:26am (December 05)
-  adri
- did you like me Noi
- at 11:26am (December 05)
- *adri* is now known as *Lucia*
- at 11:27am (December 05)
- *Noelia/Tania* has left the conversation
- at 11:29am (December 05)
-  Lucia
- hi where is everybody
- at 11:35am (December 05)
- *Lucia* has left the conversation

Kabum

Excerpt # 6.1 Adding images to play

Researcher: Next you need to look for your pictures. Do you remember how to do it? Drag it, Danilo show him how to do it; before you drag it, click in the image.

Marcelo: Here?

Researcher: It is up there, see? No, not there.

Marcelo: It was because I took, or else it would drag.

Researcher: Click at the image before dragging it.

Marcelo: There.

Researcher: Is it better?

Marcelo: Yes.

Researcher: Drag now... look at the photos that you moved here and see if it is complete, or if there is some you can add? Look at the photo gallery....

Marcelo & Noelia: here...below here.

Lucia: Teacher? Did he add ours?

Researcher: What?

Lucia: Ours?

Marcelo: I was not supposed to add these ones, no?

Lucia: No, not ours, no...

Researcher: No, wait there, we take them out, there is no problem. Look, you take it from here and throw in the trash.

Marcelo: Do I put this one too?

Lucia: Not yet. Not from us.

Researcher: Not of you all coming; only of her, right?

Interview

Researcher: Which was your first impression of VFT? Was it easy or difficult to use?

Lucia: I found it hard to use because of the mouse; too many people get confused; and I myself don't know much how to operate computer.

Tania: It was difficult at the beginning because of the language, but later it became easy (*some of the buttons were in English*).

Marcelo: More or less.

Excerpt # 9.1 Synchronizing images with sound

Marcelo: Move it here?

Researcher: Who is coming now, the mother, right?

Marcelo: Yes... this one is Tania.

Researcher: Lucia, now is your turn, come to write your line...

Noelia: She wrote it already....

Researcher: Now click in "New Sequence"... come Danilo, you record now....what are you going to say, Danilo? Luana says, "my son, did your father arrive yet?"

Marcelo (*speaks before Danilo*): Yes, my mother, he is in his room waiting for you.

Daniel (*says in a low voice*): Yes my mother, he is in the room waiting for you.

Noelia: He did not even say good night.

Researcher: You are not a well educated son, ahn? Are you going to say good night or not?

Noelia: say it, "good night my mother"

Daniel (*practices a bit before recording*): yes my mother, he is in the bedroom waiting for you.

Researcher: So, look? Please speak loud and from this distance of the microphone....

Lucia has the video camera and the others mess around with the it.

He records, but there is a problem with the microphone. I had to close VFT and open it again.

Lucia: Alice, stay closer....

There is a pause here where I get the video camera from Lucia, ask her a question about VFT (see below in interview) and Lucia seats down to practice and record her line.

... Researcher: ... Lucia, when do you get to the bedroom, what do you say?

Lucia: Danilo, what would you like to talk to me?

Researcher: Please speak louder!

Lucia: Danilo, what would you like to talk to me?

Researcher: A bit louder!

Lucia: Danilo, what would you like to talk to me?

Noelia: You don't even say good night.

Lucia: Danilo, what would you like to talk to me?

Researcher: What about you Marcelo?

Marcelo tries to deliver his line again, but can not say that easy, so he decides to write it down. I dictate and he writes.

Marcelo: Fabiana, are these prices really good to buy construction material for the building?

Lucia and Marcelo repeat this dialogue four times more before they record it.

Researcher: Now someone needs to make the noise of the music in the background.
Noelia decides to do it, since Tania was not present.
The first recording came out without Noelia singing, then they practiced two more times the same lines reading from a piece of paper and recorded a second time with Noelia singing on the background, but Lucia's voice was low. I asked them to record again and they practice two more times while Lucia tries to increase the volume and clearness of her voice. They recorded a third and final time.
 Researcher: Now, you look for the photos.
 Marcelo: Here, this one ...
 Noelia: Drag this photo there....
 Lucia: Click here, right? *Lucia was learning how to drag and drop.*
 Researcher: Here or over here ...one finger here... now drag it.
 Marcelo (*pointing to the screen*): You will move here, look?
 Researcher: Right... the next one, you click and drag it...
 Lucia: Here, I'm going ...
 Researcher: ... which is the next line?
 Noelia: Then Lucia will seat next to her son.
 Marcelo: Then she is the one who asks, "Danilo the neighbor is doing too much noise... Danilo the neighbor is doing too much noise...the (*Lucia interrupts*)
 Lucia: No, he is the one who speaks like that; mother, the neighbor is doing too much noise. I can't study
 Researcher: So, let's go Danilo. Marcelo, could you get the video camera for a bit?
 Noelia: Seat here, Danilo!

Interview 1:

Children interviewing each other.
 Lucia: Noelia, what do you find of VFT so far?
 Noelia: Good, cool... I am learning several things...I am learning about theater and how to pass the theater to the computer.
 ... Researcher: Lucia, what do you find of VFT so far?
 Lucia: I like it a lot. It is cool...
 Researcher: Are you learning at the same time? Speak loud....
 Lucia: I am learning at the same time.... She says some other things that I can't hear.

Excerpt # 11.1 Recording line

Researcher: Now what do you do to create a new sequence? Where do you click?
Lucia points to the "new sequence" button.
 Researcher: Now, Noelia what do you say?
 Noelia: Uncle , is there something to eat?

 Researcher: (*to Lucia*) what do you say?
Lucia first speaks low, but as Noelia starts to deliver her line, she increases the volume:
 Hi dad, I am here and I am hungry.
 Researcher: Again, your voice was not recorded.

Lucia: Hi dad, I am here and I am hungry.

Researcher: 1,2,3 and go...

Lucia: Hi dad, I am here and I am hungry.

Researcher: And now what do you do to create new sequence? Where do you click?

Lucia is the one who points again.

Synchronizing image with sound

Noelia: Flavia does not know how to use *VFT* yet, do you teach her, ok?

Tania: Now, this one?

Noelia: Yes.

Flavia: There is the thing, you click and it shows up, right?

Lucia: And has a black thing like this (points with her finger), then you click in the button below and bring it up with the other finger and then let the button loose....

Researcher: Pay attention on how Tania uses her hand, Flavia

Noelia: ...Go to the other side now; the other side...here there is a photo here, look?

Tania: Where?

Noelia: Here?

Tania: No, this one does not belong.

Lucia: This one belongs, yahp!

Noelia: There, there...

Tania: Is there of him by the shelves?

Lucia: He is coming back here, look?

Noelia: Right, drag this one! No that one is repeated...he is going to the shelves...

... Tania: does it need to be one of Marcelo coming this way? Look?

Noelia: Look here?

Tania: This is Danilo, it has to be Marcelo.

Lucia: Tania, to the house...

Noelia: No, there is from Marcelo.

Lucia: Yes, there is one, here, look?

Tania: Where?

Noelia: Where?

Lucia: The house, our little house here, come, come, there, click it there, there, look?

Researcher: Isn't there one before that? He is walking towards...

Noelia: No.

Lucia: There is a photo coming straight from the kitchen, forgot? He gets out of the kitchen and goes straight

Noelia: You have to look for it there...these are the ones when we are coming in, seating down, fighting...Marcelo coming back....throwing trash...

Lucia: Now it is right...you can go that way...go

Noelia: Look at this one, Tania.

Lucia: No, not that one...

Tania: Take your hand out of there...

Noelia: Go up there...

Lucia: This one is already by the table....

Noelia: Oh my God...it is not this one by the table....

Lucia: Go Tania, skip the photo...
 Noelia: Let me see, there is no more....
 Tania: There, I went through them all...
 Noelia: But go over there, Tania? There, this one, this one.
 Tania: Which? This one?
 Noelia: No, before, after, after, after, after...no Tania...Oh Tania?
 Tania: Which one dear? There is none of Marcelo here (*loosing her patience*)
 Noelia: Here! Click it here to see?
 Tania: There it is him throwing trash...here it is throwing trash...
 Lucia: No, add the other one... go closer to there....
 Tania: Which?
 Lucia: This one...
....this continue between Lucia, Tania and Noelia....inaudible

Excerpt 15 (continuations of page 66, Chapter 8)

Researcher: I am proud of my black color, outside you are white, but inside we are all the same.
 Noelia: There, that is enough...
 Researcher: hum, I think we need something to close it.
 Tania: We need to respect each other.
 Researcher: Right. Do you want to write or do you already know?
 Tania: I already know.
 Researcher: Then tell me.
 Tania: I am proud of my black color, you are white outside, but inside we are all the same, we need to respect each other.
 Researcher: 1,2,3 and go!
 Tania: I am proud of my black color, you are white outside, but inside we are all the same, we need to respect each other.

Excerpt #20 Live encounter between Rotary and Aplicacao at my house

Lucas expresses that the media creates an ideal image and "we" incorporate that and suffer, and at the same time "we" reject the others.

Lucas: ... those people who are suffering are ourselves, and the ones who are being aggressive are ourselves, because the media put on our heads that to be beautiful one needs a straight hair and to wear expensive brand clothing....so then the people are acting with prejudice between themselves...

Fatima explains how this bad treatment on the stores oppress them and make them buy in simpler stores: ... Sometimes you have money and want to buy in a certain boutique, but you don't go in because they treat you badly and discriminate you, then you buy in a simpler store; you are obliged to do that because of the pressure of feeling bad in a fancy store, you know that because you are black they will not consider you, then you don't even go near, so you end up doing what they want you to do, not entering their fancy places.

Lillian completes: Then we end up helping the prejudice, because a lot of people feel ashamed to complain and ask for their own rights.

Researcher: And who does loose with all that?

Rebecca: And when we try to talk and correct what they are doing with us, they call us ignorant, bad behaved and un-educated, it is horrible.

Lillian: (*complementing Rebecca*) Unliterated, student of public school

Lucas: Also if we stop to think, everything depends on the image; because the student from the public school already has this image, but this is also a consequence of the conditions that the school passes upon us; I have some classmates who are totally revolted in relation to that, because they say they don't have opportunities, but they don't look for opportunities either, so nobody is guilt, there is an impasse, everybody is guilt in this whole story, then they become rebel because the public school does not give opportunities, and so, that the teaching is horrible, then they themselves communicate this image to others and people generalize.

Lillian: Sometimes they use this rebellion in the wrong way; this rebellion should be to fight for better things, but instead, the situation is not as bad as those students portray it; some has a very wrong idea; ... they say that our school has bad teachers and everything; this year I almost did not have missing classes, and the teachers were very good...and some people end up getting used to it, they see wrong things and get accommodate just saying "that the way it is."

Lucas: This is horrible, because you see a problem ...man and stay put... it is easy to deduct what is going on... prejudice, rich on top of poor, rich getting richer, poor getting poorer...point to the problems and say this and that is a social problem, but if we cross our arms and only tell that those are problems, it will stay everything the same, but as you said (*to Lillian*), we need to look for ways to ask for our rights and above all to make a good change.

Researcher: to promote a change...

Lucas: For sure, it is easy to point the problem, the solution is complicated, the question is really the solution; then it is as you say (*to Lillian*), they don't know how to ask for their own rights, don't know how to stop and think; see guys, we have to call their attention: if it is bad, let's see what is bad, if the school principal did not solve, let's go to the mayor; my school has no gate, the gate guard spans the students; there is a series of things that could be solved, but instead the students rebel and are aggressive with the teacher and the gate guard, they threaten the principal... they don't know how to solve the situation in another way...there is a school in my neighborhood where the students who are drug dealers have power in the school and the school is supposed to be a hell...and that is the thing, they don't know how to use their head and say we will try to create a relation of piece and at the same time of protest.

Researcher: There comes the theater...

Lucas: Yeah and then comes our theater....

Researcher *interrupts*: ... The theater is a vehicle, a tool that you have to promote change... making the students reflect and debate...

Lucas explains about the kind of work they were doing in school with theater as a tool for reflection and social awareness.

Play Structure

We recommend you to create non-linear play structures. A non-linear play structure is one where the time of the plot does not follow linearly, the events might go back and forth in time, the rising conflict might happen at any time and there is no boundary of physical space (events might happen in different locales through out the play). It is like visualizing a 3-D wave going forward, going up and down, and going backward.

The non-linear structure was the one used by Bertold Brecht on his so called Epic Theater and we encourage this structure, because it seeks to minimize the empathy (becoming other) of the spectator with the character in order to facilitate the critical view of the character's actions.

If it is easier for you, you can create your play as a linear, classical Aristotelian structure, but remember to create interruptions through artistic frames and call for feedbacks in order to interrupt a bit the flow and to keep your virtual “spect-actors” thinking about the play and not totally empathizing with the characters. A classical non-linear structure is composed by a begin, middle and end or more specifically by:

- 1. Background/basic situation.**
- 2. Rising action, initial complications.**
- 3. Climax.**
- 4. Falling action; fewer complications; a resolution that leads toward the denouement.**
- 5. Denouement and conclusion.**

Creating a VFT Play

- Decide what the theme of your play is.**

- **Imagine who the characters are.**
- **Describe, give personality and will to each character.**
- **Decide what motivation drives each character.**
- **Write your script through improvisations, or by creative writing process.**
- **Take pictures of a neutral face for each character,**
- **Or take pictures of your own play enactment,**
- **Or draw your frames by hand or in the computer (if you draw by hand, you need to scan your drawings.**
- **Copy all the pictures in the directory “C:/VFT/media” if you have not created your group yet.**
- **Open VFT.**
- **Decide if you want to record the line first and then add the images, or vice-versa.**
- **You can also type the character line into the white box below the buttons where the title “Sequence #” is displayed. The written line will show up below the images that make the sequence when the animation is played.**
- **To move images from the Image Gallery into the Sequence Story Board, just drag and drop the image into the chosen slot. If you click on the image at the Image Gallery, you see a larger one at the right side of the panel.**
- **You can move the time bar to fine tune the beginning of an image with the recorded line. Just drag the blue time bar to where you want it to go.**
- **The time bar represents when the image will start in relation to the sound. The amount of time between one image and the next represents how long the image will be displayed in the animation.**
- **Create as many sequences as needed for your play.**
- **A sequence is driven by the character(s) line(s), which can not be longer than ONE minute. In case you have a character line longer than 1 minute, you need to break it in two sequences.**
- **You don’t need to put an image in each slot at first, you can always open your play to edit and continue working on it.**
- **We recommend you to have 3 frames (images) per second in order to have a smooth animation.**
- **If you need to discard an image dropped at a given frame, just drag and drop it into the Trash.**
- **You need to pull the Image Gallery panel to the right with the mouse in order to expand it.**

- Press “Record Sound” button to record the line of your character. You **NEED** to press the record button again to **STOP** recording.
- Press “Play Sound” button to listen to the recorded line or sound.
- Press “Previous Sequence” button to move to previous sequence.
- Press “Next Sequence” button to move to the next sequence.
- You can only move backward and forward between existing sequences.
- Press “New Sequence” button to create a new sequence.
- Press “Delete Sequence” button to delete an unwanted or mistaken sequence.
- Press “Save Play” button to save your play.
- You can save as a New Play, as an Original Play (if you open your own Play and is adding or changing it), or as a New Version (if you open the Play of someone else and modify it). You **MUST** save the Play first as New and only then save it as Original or Version.
- It is **IMPORTANT** to give **UNIQUE** names to your Play. If you repeat an existing Play name, your work will be lost.
- Press “New Play” button if you want to erase all the contents of your current play and start a new one.
- Press “Open Play” button to open an existing Play (yours or from others) in order to continue working on it, or create an intervention on someone else Play.
- If you open a Play from another group that not yours, you will only be able to save that Play on your own group directory. Make sure you keep the original name and add only a “Vn” at the end of the Play title. Where “n” is the number of the version.
- In order to open the latest version of a Play chooses the one with the highest version number. For instance, V12 is more updated than V10.
- All the saved Plays will be available to anyone who logs into VFT, so give meaningful names to your Play and make sure you keep the version numbers correct and sequential.
- Press “Play Structure” button for a brief guideline on how to structure/write your script.
- Press “Creating VFT Play” button for a guideline on how to create your VFT Play (this guide).
- Press “Intervention” button for a brief guideline on how to create and add frames of intervention into your digital Play.
- Press “Solving Conflict” button for a brief guideline on how to go about editing an existing Play and solving the posed conflicts.

- Press “Drama Faces” button to open the Dramatic Face module, which allows you to give emotion to a neutral face picture or a neutral cartoon face.
- Press the “easel image” button to open the Drawing Tool.
- After you save your drawing, make sure to move it from the C:/VFT/Pictures into the “C:/VFT/GroupName/media” (where GroupName is the name of your group) and convert it to a jpg or gif format.
- Use PhotoShop or similar tool to open the bmp drawing and convert it to a jpg or gif.
- Press “Play Script” button to play the current Play. It will open a media player and run the animation on another window.

Creating Intervention

You create interventions by creating an extra frame and adding it to the exact moment in the sequence where you need feedback from your virtual “spect-actors”.

You create an extra frame by drawing some image and writing a question on it. You can use the drawing tool to create the image that will be the frame you want to use. Then you need to copy that image into “C:/VFT/GroupName/media” directory. You can also draw your image and question by hand and scan that image into the “C:/VFT/GroupName/media” directory.

You can add to your play as many interventions you want and need. Probably not more than one per sequence, but it could also be more than that.

Intervention is a good way to minimize catharsis, the spiritual cleansing of the spectator through fear and pity that might happen by allowing over-identification and too much empathy with the virtual characters.

The identification of the spectators with the character provides them with sensations and draws them into a story, making them feel part of it and sharing their experience with the characters. Brecht seeks to minimize the empathy (becoming other) of the spectator with the character in order to facilitate the critical view of the character’s

actions. According to Brecht, Aristotelian catharsis almost eliminates any of the audience's critical perspective and capacity for action.

Solving Conflict

Usually the interventions are requested in moments of conflict. In order to solve a conflict, one needs to open the play in order to change the actions in the moment requested and provide a distinct action that might solve the conflict.

- 1. Click on Open Play**
- 2. Choose the Play you want to intervene**
- 3. Replace the frames with different images and record new lines or**
- 4. Delete the whole sequence and create a new one**
- 5. Save the Play as a new version (the new version will be saved on your group directory and not in the original directory where it was created)**

You need to consider the reactions of the character interacting with the one you are replacing (usually you choose to be one character and you will change the actions of that character). When you change the action of your character, the ones relating (interacting, dialoguing) with your character need to react accordingly to the new point of view presented by your character. If you don't change the reactions of the other characters, your change might not make sense. Any drama usually presents dialogues between characters and these dialogues need to make sense.

How do I replace frames?

You can choose to use cartoon images, dramatic faces or your own picture as frames to replace the original ones.

How do I record new lines?

Position the play on the sequence that needs to be modified, click Record and deliver the line to the microphone.

Estrutura da Peça

Eu recomendo que crie estruturas não-lineares. Uma estrutura não-linear é aquela em que o tempo do enredo não acontece sequencialmente; os eventos podem acontecer no passado, presente ou futuro sem terem que seguir nenhuma ordem temporal. O clímax (momento de maior conflito) pode acontecer em qualquer momento da Peça (início, meio ou fim); também não existe limite de espaço físico (eventos podem ocorrer em locais diferentes no decorrer do enredo). É como visualizar uma onda em 3-D indo para frente, para cima, para baixo, e para trás.

A estrutura não-linear foi usada por Bertold Brecht no seu Teatro Épico, para minimizar a empatia (se tornando o outro) do espectador com o personagem e facilitar a visão crítica das ações dos personagens.

Se for mais fácil para você, pode usar uma estrutura linear, ou estrutura clássica (estrutura aristoteliana). Mas lembre de criar interrupções através de quadros artísticos e pedir *feedbacks*, pois somente assim você pode quebrar um pouco a estrutura linear e manter os seus espectadores virtuais pensando sobre a Peça e não totalmente sugados pelos personagens. Uma estrutura clássica linear é composta por um início, meio e fim, ou mais especificamente:

1. Histórico/situação básica.
2. Crescente de ações, complicações iniciais.
3. Climax.
4. Ação descendente; menos complicações; resolução que leva a um final.
5. Final e conclusão.

Criando uma Peça de VFT

- **Decida qual o tema da sua Peça.**
- **Imagine quem são os personagens.**
- **Descreva, dê personalidade e querer a cada personagem.**
- **Decida qual a motivação que move cada personagem.**
- **Escreva seu script através de improvisações, ou por meio de processos de escrita criativa.**
- **Tire foto de um rosto neutro de cada personagem,**
- **Ou tire fotos da encenação da sua própria peça,**
- **Ou desenhe seus personagens à mão ou por computador (você precisa escanear seus desenhos à mão)**
- **Copie todas as fotos no diretório “C:/VFT/media”, se ainda não tiver criado o seu grupo.**
- **Abra VFT, arraste a janela da Galeria de Imagens para a direita, clique em uma imagem e aumente a janela principal.**
- **Decida se você quer gravar a fala do personagem e depois acrescentar as imagens, ou vice-versa.**
- **Você pode também escrever a fala do personagem na caixa branca abaixo dos botões sob o título “Fala”. A linha escrita aparecerá abaixo das imagens que compõem a seqüência quando a animação é rodada.**
- **Para mover as imagens da Galeria de Imagens para o Quadro de Estória por Seqüência, arraste e coloque (drag&drop) a imagem dentro do quadro escolhido. Se você clicar em uma foto na Galeria de Imagens, você vê uma imagem maior no painel à direita da Galeria.**
- **Você pode mover a barra de tempo para melhor ajustar o início da imagem com a fala gravada. Arraste a barra azul de tempo para onde você quiser que ela vá.**
- **A barra de tempo representa aonde a imagem começa em relação a fala gravada. O tempo decorrido entre duas imagens representa o tempo que a imagem será mostrada na animação.**
- **Crie quantas seqüências forem necessárias para sua peça.**
- **Uma seqüência revolve em torno da fala do personagem, que não pode ser mais do que UM minuto. No caso de precisar de uma fala mais longa do que 1 minuto, você precisa dividir essa fala em duas e criar duas seqüências.**

- Você pode deixar um quadro vazio para completá-lo depois, ou para aumentar o tempo da imagem na animação, ou até para inserir um quadro de interrupção quando estiver pronto.
- Recomendo que tenha 3 imagens/quadros por segundo a fim de ter uma boa animação.
- Se precisar descartar uma imagem que tenha sido colocada num quadro, simplesmente arraste-a para o lixo.
- Clique o botão de “Gravar Som” para gravar a fala do seu personagem. Para finalizar a gravação pressione o botão “Parar Gravação”.
- Clique o botão “Tocar Som” para ouvir a gravação.
- Clique o botão “Sequência Anterior” para mudar para a seqüência que antecede a atual.
- Clique o botão “Sequência Posterior” para mudar para a seqüência seguinte.
- O movimento para trás e para frente só é permitido entre seqüências existentes.
- Clique o botão “Criar Sequência” para adicionar uma nova seqüência.
- Clique o botão “Deletar Sequência” para apagar a seqüência.
- Clique o botão “Salve Peça” para salvar seu script.
- Pode salvar como uma Peça Nova, como uma Peça Original (se você abrir a sua Peça para continuar o trabalho ou para modificá-la), ou como uma Nova Versão (se você abrir a Peça de outra pessoa para modificá-la). É necessário salvar como uma Peça Nova antes de salvar como Original ou Versão.
- É MUITO importante dar um nome único para sua Peça. A repetição do mesmo nome implica na perda do seu trabalho.
- Clique o botão “Criar Peça” se quiser apagar o conteúdo da Peça atual e começar uma nova.
- Clique o botão “Abrir Peça” para abrir uma Peça existente (sua ou de outra pessoa) a fim de continuar trabalhando nela, ou para criar uma intervenção na Peça de algum outro grupo.
- Se abrir a Peça de outro grupo, você só poderá salvar uma nova versão no diretório do seu próprio grupo. Mantenha o nome original e acrescente somente “Vn” ao final do título da Peça. Onde “n” é número da versão.
- A fim de abrir a mais recente versão de uma Peça, escolha a que tenha o maior número de versão. Por exemplo, V12 é mais recente/atualizada do que V10.

- Todas as Peças salvas no servidor estarão disponíveis para quem se conecta ao VFT, então dê nomes de significado as suas Peças e mantenha o número de versão em ordem crescente.
- Clique o botão “Estrutura da Peça” para uma breve noção de como estruturar/escrever seu script.
- Clique o botão “Criando VFT” para instruções em como criar Teatro-Fórum Virtual (este guia).
- Clique o botão “Intervenção” para obter um guia resumido de como criar quadros de intervenção e colaborar com outros grupos *on-line*.
- Clique o botão “Resolvendo Conflitos” para um guia resumido de como editar uma Peça existente e resolver os conflitos propostos.
- Clique o botão “Drama Faces” para abrir o módulo Face Dramática, que permite dar emoção a uma imagem de face(rostro) neutro.
- Clique o botão da imagem do “cavelete” para abrir a ferramenta de Desenho.
- Depois que salvar o seu desenho, você precisa movê-lo do diretório C:/VFT/Pictures para o C:/VFT/NomedoGrupo/media (NomedoGrupo e o nome do seu grupo). Por exemplo se seu grupo for CIPÓ então o diretório será C:/VFT/ CIPÓ /media. Não esqueça de converter o desenho do formato bmp para o formato jpg ou gif.
- Use PhotoShop para abrir o desenho em bmp e convertê-lo para jpg ou gif.
- Clique o botão “Rodar a Peça” para ver a Peça que esta aberta no VFT. A Peça será aberta em *Real One* [TM](#) e a animação aparecerá em outra janela.

Criando Intervenções

Para criar uma intervenção, crie um quadro extra e posicione-o no momento exato na sequência em que você quer a opinião dos seus espectadores virtuais.

Para criar um quadro extra, desenhe algo e escreva sua pergunta no mesmo desenho. Você pode usar a ferramenta de desenho localizada sob o ícone do cavelete para criar seu quadro intervencionista. Seja criativo.

Depois que salvar o seu desenho, você precisa movê-lo do diretório C:/VFT/Pictures para o C:/VFT/NomedoGrupo/media (NomedoGrupo e o nome do seu grupo). Por exemplo, se o seu grupo for CIPÓ, então o diretório será C:/VFT/ CIPÓ /media. Não esqueça de converter o desenho do formato bmp para o formato jpg ou gif.

Use Photoshop para abrir o desenho em bmp e convertê-lo para jpg ou gif.

Você pode também desenhar seu quadro à mão e escanear o desenho, salvando-o para o mesmo diretório citado acima.

Pode criar quantas intervenções quiser na sua Peça. Provavelmente não mais do que uma por seqüência, mas fica totalmente ao seu critério.

Intervenção é uma boa maneira de minimizar a catarse, a limpeza espiritual do espectador por meio de medo e pena. A catarse pode acontecer através de uma identificação exarcebada e muita empatia com os personagens.

A identificação do espectador com um personagem invoca sensações e o suga para dentro da estória, fazendo com que ele se sinta parte da mesma e compartilhe sua experiência com os personagens. Brecht procura minimizar a empatia (se tornando o outro) do espectador com o personagem a fim de facilitar a visão crítica das ações do personagem. De acordo com Brecht, a catarse aristoteliana quase elimina a perspectiva crítica da audiência e sua capacidade de ação.

Solucionando Conflitos

Intervenções são normalmente requisitadas em momentos de conflito. A fim de resolver um conflito, precisa-se abrir uma Peça para modificar as ações no momento requerido, e oferecer uma ação distinta que possa acabar o conflito.

- 1. Clique em “Abrir Peça”.**
- 2. Escolha a Peça na qual quer intervir.**

- 3. Substitua os quadros com outras imagens e grave novas falas, ou**
- 4. Apague toda a seqüência e crie uma nova, ou faça qualquer outra mudanca que seja necessária.**
- 5. Salve a Peça como uma nova versão (a nova versão sera salva no diretorio do seu grupo e não no diretório do grupo que escreveu a Peça originalmente).**

Você precisa considerar as reações do personagem interagindo com aquele que você esta substituindo (normamente escolhe-se um personagem e muda as ações do mesmo). Quando se muda a ação de um personagem, aqueles se relacionando (interagindo, dialogando) com ele precisam reagir de acordo com o novo ponto de vista introduzido pelo personagem que você está substituindo. Se as reações dos outros personagens não forem mudadas, talvez o enredo fique sem sentido. Qualquer drama envolve diálogo entre personagens e estes diálogos precisam fazer sentido e ter um significado dentro do contexto.

Como eu substituo os quadros?

Você pode escolher entre imagens cartunicas, rostos dramáticos da sua propia face, ou fotos de rostos com máscara para proteger sua identidade. Copie essas imagens no diretório apropriado (C:/VFT/NomedoGrupo/media), e ao abrir a Peça a ser modificada, simplesmente arraste a nova imagem para o quadro que quer alterar.

Como eu gravo novas falas?

Posicione a Peça na seqüência que precisa ser modificada, clique “Gravar” e fale ao microfone. Ao acabar as intervenções salve a Peça com a versão apropriada.

Appendix 6

IRB Consent Forms in English

Appendix 6 is an external file