

The Effectiveness of a Virtual Role-play
Environment as a Preparation Activity for Story
Writing

Judy Robertson

Ph.D.

University of Edinburgh
2000

I, Judy Robertson, am the sole author of this work.

Abstract

Improvisational dramatic role-play activities are used in classrooms to encourage children to explore the feelings of the characters in a story. Role-play exercises can give a story personal significance to each child, and an insight and understanding of the characters which is reflected in stories written afterwards. The thesis describes the development of a virtual environment designed for similar dramatic role-play exercises.

The thesis then investigates its effectiveness as a preparation activity for writing stories. It examines the effects the virtual role-play environment has on the characterisation in children's imaginative writing. It also investigates the social interactions which children engage in and the moral decisions they make during the role-play; and the motivational effects of the virtual role-play environment.

The virtual role-play environment is based on a commercial computer game. Two children and one role-play leader interact with each other in a perceptually realistic virtual world. Each role-player controls an avatar in order to move around this graphical world, and improvise by sending and receiving typed messages.

The high quality graphics, sounds and music contribute to the users' feelings of perceptual presence while the communication between role-players promotes feelings of social presence. The role-players' emotional engagement with the other characters and the conflict within the adventure encourages them to experience self presence.

The virtual role-play environment was evaluated in a field study with sixty children aged between ten and twelve years. The characterisation in stories written after using the virtual role-play environment was compared to the characterisation in stories written under normal classroom circumstances. The stories were compared using a new, fine-grained analysis scheme for assessing children's writing. The main result is that the stories written after the virtual role-play contained more dialogue and more indications of relationships between the characters than normal classroom stories. Analysis of the typed communication exchanged between the role-players during the game shows that the role-players formed relationships with the other characters. They also made judgements about the characters' personalities and to a lesser extent expressed emotional involvement during the game. They made moral decisions and could back up their decisions with reasons. Expert evaluation supports the view that the virtual role-play environment is particularly beneficial to children with low literacy standards. Finally, it also benefits children with low literacy motivation and little interest in school work.

Contents

ABSTRACT	4
CONTENTS	V
PREFACE	XI
Acknowledgements	xi
Notes	xii
1 INTRODUCTION	1
1.1 The benefits of imaginative writing	1
1.2 Writing is daunting and difficult	4
1.3 Motivating children to write stories	6
1.4 Main Thesis Questions	9
1.5 Thesis Outline	9
2 EDUCATIONAL BACKGROUND	13
2.1 Introduction	13
2.2 Imaginative Writing	13
2.3 Educational drama	32
2.4 Virtual role-playing and writing	40
2.5 Summary	43
3 ASSESSING CHILDREN'S WRITING	45
3.1 Introduction	45
3.2 Methods for assessing children's writing	45
3.3 Writing assessment scheme	57
3.4 Summary	113

4	SOFTWARE AND STORIES	115
4.1	Introduction	115
4.2	Educational objectives and presence	116
4.3	Social and self presence in online communities	121
4.4	Software to assist children in creating narratives	129
4.5	Interactive stories	145
4.6	Summary	161
5	THE DESIGN OF GHOSTWRITER	163
5.1	Introduction	163
5.2	General Decisions and Pilot Work	164
5.3	Story Design	166
5.4	Unreal Technology	184
5.5	Presence in Ghostwriter	196
5.6	Summary	201
6	SYSTEM EVALUATION	205
6.1	Overview of Evaluation	205
6.2	User Evaluation of the game	207
6.3	Ease of Use of Game Controls	217
6.4	Evaluation of Plot Design	221
6.5	Chapter Summary	226
7	EDUCATIONAL EVALUATION	229
7.1	Overview	229
7.2	Evaluation of Virtual Role-playing	229
7.3	Story Evaluation	254
7.4	Teacher's Evaluation	281

7.5	Case Studies	283
7.6	Chapter Summary	299
8	FURTHER WORK	301
8.1	Introduction	301
8.2	Ongoing Work	301
8.3	Future Empirical Work	303
8.4	Possible adaptations of Ghostwriter	305
8.5	A virtual story authoring tool	308
8.6	Summary	309
9	CONCLUSIONS	310
9.1	Contributions	310
9.2	Findings	310
9.3	Thesis Questions Revisited	312
9.4	Conclusion	316
	REFERENCES	317
	GAME REFERENCES	333
	APPENDIX A: TRANSCRIPT OF VOICE RECORDINGS	335
	APPENDIX B: STORIES	346
B.1	A Visit to a Ruined Castle	346
B.2	A Visit to a Ruined Castle	346
B.3	A Visit to a Ruined Castle	347
B.4	A Visit to a Ruined Castle	350
B.5	A Visit to a Ruined Castle	353
B.6	A Visit to A Ruined Castle	354

B.7 Adventure Castle	356
B.8 The Hunted Castle	356
B.9 Saving Fred	358
B.10 A Night in Creepy Kirk Castle	361
B.11 The Mystery of Kirk Hall	363
B.12 The Killing of Lady Searle	364
B.13 Unreal	366
B.14 My mission	366
B.15 The Castle of Fear	367
APPENDIX C: INTERVIEW WITH TEACHER	368
APPENDIX D: EXPERIMENTAL MATERIALS	377
D.1 Control Group Observation	377
D.2 Control Group Instructions for Teacher	384
D.3 Control group workshop	385
D.4 Experimental group instructions	387
D.5 Pupil Interview Questions	388
APPENDIX E: STORY ASSESSMENT SCHEME	391
E.1 Appearance	391
E.2 Action	391
E.3 Speech	392
E.4 Location	393
E.5 Mood/Objects and animals	393
E.6 Overview	394
E.7 Characters:	394
E.8 Setting:	394

E.9 Codes List	395
E.10 Scope	396
E.11 Action	396
E.12 Appearance	399
E.13 Location	401
E.14 Mood	402
E.15 Object	403
E.16 Personality	404
E.17 Relationships	405
E.18 Speech	407
E.19 Weather	409
APPENDIX F: STATISTICAL INFORMATION	411
F.1 Control/Pre-game comparisons	411
F.2 Test for univariate normal distribution	412

Preface

Acknowledgements

“Wouldn’t it be great if you could get kids hooked on a computer game that was actually good for them...”

Three years ago I pondered over this notion in the Festival Theatre Bar in Edinburgh over several cups of hot chocolate. The transformation from that vague, half-formed thought to the thesis you see before you now would not have been possible without the help of a number of friends and colleagues.

From the first leisurely sips of chocolate to the final frenzied slurps of Irn Bru, Judith Good has helped me at every stage. Her friendly guidance through the strange world of academia has proved invaluable to me.

Jon Oberlander has conjured up penetrating comments, children and computers with apparent ease and for this I am extremely grateful. Paul Brna’s experience and kindness over (yet more) cups of chocolate also helped me along the way.

I would like to thank the teachers of Sinclairtown Primary School, Kirkcaldy for working with me on the field study. Playing a computer game with the children of primaries six and seven for two weeks was fantastic fun! Thanks particularly to Steven for his great enthusiasm and to Charlotte for writing the prequel to the story in the game.

My friend Senga Munro has shown me the value my game can have for “real pupils in real schools”. Thanks to her for this, and for saying “That’s not a problem” more times than I can count.

Thanks are also due to Claire Mulholland and Ewan MacVicar for giving me a storyteller perspective on the game design, and to Graham Arrowsmith for his work on the motion capture. Jean McKendree second rated some stories for me. Arnout Dalkman provided Fred-the-Goblin’s voice and Geoff Lee provided Fred’s lolloping gait. Thanks to Liberty, Becky, Leigh, Conrad and Nicholas for their help with the

motion capture and early pilot testing. Thanks also to Young Toby Blake for providing technical support to a skiving PhD student.

The Seymour family have also been enormously supportive. Jane Seymour cheered me and fed me when the going was tough during my field study. Philip Seymour uttered the magical word “MANOVA” at just the right moment. Mary Marcella Seymour invested a huge amount of creative effort in my game, from script writing, to voice acting, to motion capture, to interviewing children, to calming me down at stressful moments - I could not have done any of this without her.

Finally, to Dominic Seymour: love and thanks for his financial assistance (along with EPSRC); his technical acumen; his sense of aesthetics; his patience and love. But most of all, for his belief in me.

Notes

Where it is important that the reader should know that I, the researcher, carried out a piece of work, the thesis changes to first person. This occurs when describing the methodology for developing the analysis scheme, the experimental set up and the description of the game design. My input into these tasks is individual and unique; other researchers may approach this differently and so get different outcomes. It is particularly important for the reader to know that I took part in the field study as the role-play leader.

The words *he*, *she*, *him* and *her* are used randomly throughout the thesis. The terms *virtual role-play environment*, *the game* and *Ghostwriter* are used interchangeably.

Examples of children’s stories, transcripts from virtual role-playing sessions, motion capture movies, and sound samples from the game can be found on the accompanying CD.

1 Introduction

Writing stories can be immensely rewarding but it can also be dauntingly difficult. “Expressing one’s thoughts in writing is often a dreaded and onerous task. Other times it can be pure joy – fluent, fluid and seemingly effortless” (Ransdell and Levy, 1996; p. 93).

This thesis investigates a prewriting activity which is designed to make the writing task less dreadful and onerous for children. It argues that it is possible both to motivate children to write stories, and to support aspects of their story writing through a dramatic preparation activity in a virtual environment. The thesis describes Ghostwriter, a virtual role-play environment which was designed to be a fun and exciting adventure during which children can gain insight and understanding about story characters. The thesis supports the view that preparation in this virtual role-play environment has a positive effect on the characterization in children’s stories.

This chapter considers the benefits of writing stories (Section 1.1), and some reasons why people dislike it or find it difficult (Section 1.2). An overview of the virtual environment is given in Section 1.3. The main research questions are summarized in Section 1.4, and an outline of the rest of the thesis is supplied in Section 1.5. Quotations from the novel “Haroun and the Sea of Stories” by Salman Rushdie (Rushdie, 1990) appear in this chapter and throughout the thesis because they imaginatively illustrate important points about creating stories.

1.1 The benefits of imaginative writing

“What’s the use of stories that aren’t even true?” Haroun couldn’t get the terrible question out of his head.

Haroun and the Sea of Stories p. 20

At the beginning of Haroun and the Sea of Stories the “sticky-thin, whiny voiced ” Mr Sengupta says “Life is not a storybook or a joke shop. All this fun will come to no good. What’s the use of stories that aren’t even true?” (Rushdie, 1990; p. 20). The question haunts Haroun, whose father is a storyteller, throughout the book.

Why is it important for children to learn how to write stories? What *is* the use of stories that aren't even true? Teaching manuals such as Ellis and Friel (1998) list a number of reasons why writing imaginative stories gives children an academic advantage. They state that writing stories can teach children how to “use language to think”; to “be comfortable with using language to think about abstract possibilities”; “to appreciate the difference between written and spoken language” (Ellis and Friel, 1998; p. 1). Smith and Elley (1998) state that “writing is a prime means of demonstrating we have learned something”. However, some researchers dispute the claim that writing should be particularly prized for its capacity to develop abstract thought (Flower, 1994; Czerniewska, 1992). They argue that claims of this kind are limited because they are centered around academic discourse communities where particular intellectual skills are valued. It is true that writing may teach children abstract skills such as how to structure an essay. It is also true that learning in other discourse communities (e.g. at home) can teach other valuable skills. The problem with valuing particular discourse communities over others - for example what is taught at school is often seen to be more important than the knowledge about language that children bring to school – is that children who come from a discourse community which does not have the same traditions as the academic community are at a disadvantage.

Regardless of the effect writing has on abstract reasoning, creating imaginative narrative can be beneficial to learners in other ways. Bruner (1986) claims that there are two primary modes of thought – logio-scientific and narrative. These two types of thought are not reducible to each other and should be nurtured separately. He states that:

“The imaginative application of the narrative mode leads ... to good stories, gripping drama, believable... historical accounts. It deals with human or human-like intention and the vicissitudes and consequences that mark their course. It strives to put its timeless miracles into the particulars of experience, and to locate the experience in time and space”(Bruner, 1986; p. 13).

From this standpoint, fostering children's imaginations to develop their narrative mode of thought is as important as teaching logical reasoning. Egan, in Hamilton and Weiss (1990) says:

“Imagination is not some desirable but dispensable frill but ... is the heart of any truly educational experience; it is not something split off from “the basics” or disciplined thought or rational inquiry, but it is the quality that can give them life and meaning.” (p. 137).

Writing stories can help children to develop emotionally as well as cognitively. Imaginative writing can encourage children to understand words outside their own experience (Ellis and Friel, 1998). Writing can be used as a way to remember, explore, interpret, clarify, reflect on and celebrate personal experiences (Ellis and Friel, 1998; Martin, 1983; Scottish Executive, 1999; SCRE, 1995).

During *Haroun and the Sea of Stories*, Haroun comes to realize what the world would be like without stories and so he fights with the inhabitants of Kahani moon to save the Ocean of the Streams of Stories. At the end, he reflects on his adventures, and because he is on Kahani where stories are manufactured, he is able to create a happy ending for his own story:

“‘Very well, then,’ Haroun said boldly, ‘You said it could be a big wish, and so it is. I come from a sad city, a city so sad it has forgotten its name. I want you to provide a happy ending, not just for my adventure, but for the whole sad city as well’.

‘Happy endings must come at the end of something,’ the Walrus pointed out. ‘If they happen in the middle of a story, or an adventure, or the like, all they do is cheer things up for a while’

‘That’ll do’, said Haroun.”

Haroun and the Sea of Stories p. 202.

While most children are not in a position to create their own happy endings in real life, they can create and remember their own adventures through writing stories.

One of the boys who took part in the research described in this thesis summed up a great benefit of writing stories. When asked by a visiting story teller why he liked to make up stories of his own, he answered “There’s no wrong.” There are many opportunities to be wrong in mathematics, science, history or geography. When writing a story, a pupil does not need to worry about being wrong. There is no single, correct answer which the teacher knows already. The pupil has a chance to express himself through a story which is as unique as he is; a story which can entertain and

move other people. Story writing can be a way to help children increase their self esteem.

In summary, some of the main educational benefits of writing imaginative stories include: developing narrative reasoning and fostering the imagination; exploring and reflecting on personal experiences; and raising self esteem. However, many children find writing stories very difficult and feel daunted by such a task. The next section discusses some obstacles which prevent pupils from benefiting from story writing.

1.2 Writing is daunting and difficult

“It’s no use – I won’t be able to do it – I’m finished, finished for good!”

Haroun and the Sea of Stories p. 53

Haroun’s father Rashid, teller of “tall, short and winding tales”, has a problem. When he loses his wife to Mr Sengupta, he also loses his ability to create stories. Whenever he tries to come up with a new story all he can do is croak like a crow. He paces miserably across the floor muttering:

“I’ll get up on stage and find nothing in my mouth but *arks*. – Then they’ll slice me in pieces, it’ll be all up with me, finito, khattam-shud! – Much better to stop fooling myself, give it all up, go into retirement, cancel my subscription – Because the magic’s gone, gone for ever, ever since she left.”

Haroun and the Sea of Stories p. 53

Rashid is suffering from a version of writing apprehension. Madigan, Linton and Johnson (1996) describe writing apprehension as anxiety, self-deprecating thoughts and concern about how written work will be received. For sufferers of writing apprehension, writing is “an unpleasant, unrewarding activity that they actively avoid (Madigan, Linton, and Johnson, 1996 ; p 295). Unfortunately, they note that many adults suffer from this problem, and that it can have an effect on sufferers’ career choices i.e. they seek out a career where they will not have to write frequently. Writing apprehension begins at school: “Large numbers of children enter school as eager learners and writers, and leave as reluctant writers.” (Hood, in Smith and Elley,

1998, p36). In a survey of eleven year olds' attitudes to writing, Gorman et al. (1988) found that 38% of the children agreed with the statement that "I only write when I have to", 40% agreed with the statement that "I look forward to a time when I won't have much writing to do", and 17% said that they hated writing.

In the extract above Rashid is engaging in negative self-talk; his doubt in his own abilities is reinforced by his habitual self criticism. Madigan et al. (1996) found that apprehensive writers were more likely than confident writers to engage in negative self-talk as they wrote. Although the ability to evaluate one's own writing is a requirement for successful writing, too much self criticism can make the task much more painful. In the domain of expository writing, Madigan et al. (1996) found that the quality of the writing produced by apprehensive student writers was as high as that produced by confident writers. However, writing apprehension does have a negative effect on the quality of personal narrative writing: "When students are required to write personal narratives, the focus on the writer as subject may add to the evaluation anxiety and increase negative self talk to the point where it interferes with the composing process." (Madigan, Linton, and Johnson, 1996 ; p. 307).

A recent report on English Language performance in Scottish schools noted that 64% of the total writing samples gathered from eleven year old pupils were below the attainment targets stated in the National Curriculum (AAP, 2000). Although performance on the imaginative and personal writing tasks was slightly higher on average (56% and 66% were below the attainment target, respectively), there is much room for improvement. Why is it that pupils' writing performance is so poor?

Writing is difficult. As discussed in Chapter Two (Section 2.2.1), the writer must try to satisfy a number of different constraints as she writes – for example what word to use next, whether this sentence follows on from the last one, and the effect the writing will have on the reader. Story writers are also struggling with the problem of creating a coherent, imaginative story.

In addition to the problems intrinsic to writing, some writing instruction in schools may be inadequate. A recent inspection of Scottish Schools found that 43% of primary schools had "important weaknesses" in writing instruction (Scottish

Executive, 1999). Furthermore, the feedback children receive from their teachers may be hard to interpret, highly critical and demoralizing (see Chapter Three, Section 3.2.2)

It is little wonder that some children begin to dislike writing, begin to doubt their own abilities, and try to avoid it. In the case studies in Chapter Seven, two of the pupils routinely frustrated their teachers by writing only a few sentences in the space of an hour. However, it became apparent during the field study that these pupils were capable of using language imaginatively to create interesting stories. They just required the motivation to make the effort.

In *Haroun and the Sea of Stories*, Rashid overcomes his story apprehension when the Water Genie reconnects him to the supply of stories from the Ocean of the Streams of Story. The next section considers another way of motivating children to write stories.

1.3 Motivating children to write stories

He found himself standing in landscape that looked exactly like a giant chessboard... He was, so to speak, looking out through the eyes of the young hero of the story.

Haroun and the Sea of Stories p. 73

By drinking a golden cup of story water, Haroun is able to experience a story first hand. In the absence of story water, it is possible for children to experience stories through computer games.

Many children enjoy playing computer games. In a recent field study conducted at a primary school, we asked thirty ten year old pupils how frequently they play computer games and how long they spend playing them at a time (see Chapter Eight for a brief discussion of this study). Although the children found it difficult to judge this, the most common length of time spent at one session was half an hour, and the most common frequency of game sessions was three to four times a week. A few

children played games every day of the week, for “hours at a time”. Some of the children stated that their parents restricted their use of games because “they had been playing them too much”. Indeed, adults’ concern about children’s “addiction” to computer games has provoked what McNamee (1998) terms a “moral panic”. The pleasure which children take from computer games, the amount of time which they devote to playing them and the violent themes of some games has led to concern about the impact they could have on children’s social behaviour (see Chapter Four, section 4.5.3).

However, children clearly find computer games motivating. This thesis considers how the motivational effects of this technology can be harnessed for educational purposes. Specifically, it considers the effects of a virtual environment, implemented using commercial computer game technology, on characterization and setting in children’s stories.

The virtual environment described in this thesis is based on the educational drama technique of story drama. During an adventure in the virtual environment the children experience a story; they “look out through the eyes of the hero”. Pairs of children prepare to write stories by playing characters in a computer-mediated role-play session in the virtual environment. A role-play leader plays the part of other story characters, and in role, encourages them to become emotionally involved in the story and discuss difficult decisions with each other. The role-players can control their characters’ movements in the virtual world; they can run, swim and jump. They communicate by typing messages. A scene from the Ghostwriter is shown in Figure 1-1.



Figure 1-1: A scene from Ghostwriter.

Ghostwriter was designed to be both fun and thought provoking. The adventure in the virtual world is intended to provide an exciting, rich experience upon which to base a story. The role-playing aspect of the game is intended to help children improve characterization in their stories. Other styles of virtual environment may be suitable for developing other aspects of stories, but this thesis concentrates on the effect this virtual environment has on the techniques the pupils use to portray characters and describe the setting.

The characters in a story engage the reader. To have an interest in the outcome of the plot, the reader has to have some interest in what happens to the characters. Descriptions of the setting can help the reader to imagine he is really in the story. In order to create a story which a reader will enjoy, the writer can use various techniques to portray convincing characters and evoke a sense of place (some of these are described in Chapter 3 Section 3.3). Mastery of these techniques, then, can

help a writer to create stories which give her a sense of accomplishment from the pleasure they bring to her readers.

To portray characters effectively, the writer needs an understanding of the characters' moods, personality and relationships with other characters. In many cases it is the relationship between the characters which drives the plot. Story drama and role-play can be used to help pupils empathise with other people and look at a situation from a new perspective. The idea behind this project was to combine the powerful motivational effect of computer games with drama techniques which can help pupils take the perspective of other people. The resulting virtual role-play environment can be used as a preparation activity for writing stories with effective characterization.

1.4 Main Thesis Questions

The thesis describes the design and evaluation of a virtual role-play environment. There are three main research questions to be addressed:

- What is the effect of the environment on pupils' motivation?
- What effect does preparation in the virtual role-play environment have on the characterization and setting in children's stories?
- Do the computer -mediated interactions between the users in the virtual environment support the aims of dramatic role-play?

1.5 Thesis Outline

This thesis answers the research questions through an evaluation of the virtual role-play environment in a classroom setting. The effects of the virtual role-play environment on pupils' stories are investigated through comparison with stories written under normal classroom conditions. It is outwith the scope of this thesis to compare the virtual role-play environment to physical classroom role-play. The virtual role-play environment is intended to be used as one more technique to help children write better stories, and may be most successful when integrated into a curriculum alongside other teaching activities. The aim of this thesis is to uncover the strengths and weaknesses of the virtual role-play approach.

Chapter Two discusses relevant educational theory and practice in writing and drama instruction. It outlines cognitive theories of how writers compose; the development of writing and story creation abilities; and the process approach to writing instruction which is used in Scottish schools. It explores how drama work can be used as a preparation activity for imaginative writing, and how virtual role-play may differ from physical classroom role-play. The requirements for the virtual role-play environment are specified.

In order to evaluate the effect of the virtual role-play environment on children's stories, a new method of analyzing the characterization and setting in stories was required. Chapter Three reviews methods of assessing children's writing used by teachers and researchers, and discusses why these methods were not suitable for this project. A story analysis scheme for assessing the techniques used to portray the personality, moods and relationships of story characters, and the physical setting of the story is presented. The scheme was developed from the study of techniques used by writers at various stages of development from five year olds' school diaries to fiction by accomplished adult authors.

Chapter Four describes some educational and entertainment software packages which have goals in common with the virtual role-play environment. There has recently been an interest in software which can assist pupils as they create narrative. Academics have started to research the educational uses of virtual environments in areas such as story writing, play and affective development. Theories of presence from virtual reality can be used to identify the features of virtual environments which can support the educational aims of role-play. The chapter defines physical, social and self presence. It discusses how the role-play goals of empathizing with story characters and becoming emotionally involved in the story can be achieved in a virtual environment if the users experience social and self presence.

The computer games industry has also recently begun to develop games in which the user is the main character of a story. Chapter Four considers how such games approach the tradeoff between the user's participation in the story and the

presentation of a coherent storyline. Mateas' (2000) theory of agency in interactive drama suggests how an optimal solution to this tradeoff can be found.

Chapter Five describes the design of the virtual role-play environment. The design approaches the tradeoff between user participation and the presentation of a coherent storyline through the flexibility of the human role-play leader's responses to messages from the role-players. Guidelines about appropriate content for children's computer games, drawn from children's fiction (The "Harry Potter" series) and story drama, are suggested. These were used to develop the scenario, consisting of a series of plot episodes, for the virtual role-play environment. Features of the design which are intended to evoke physical, social and self presence are identified.

Chapter Six answers the research question "What is the effect of the environment on pupils' motivation?". It describes the method used in the field study and the pupils' opinion of the game. Data from interviews with the pupils shows that the pupils were highly motivated by the game. It also identifies usability problems the pupils encountered and evaluates the plot episodes which were designed to be part of the storyline. Comments from an interview with an experienced teacher and storyteller suggest that the virtual environment is particularly beneficial to pupils with low levels of motivation.

Chapter Seven evaluates the educational effects of the virtual role-play environment. It analyses the typed interactions between role-players for evidence that they experienced social and self presence. This analysis suggests that computer-mediated role-play is a fruitful approach to helping children explore the relationships between characters. The effect of the virtual role-play environment on the characterization and setting was analysed using the story analysis scheme described in Chapter Three. The results show that stories written after the virtual role-play session contained more portrayal of the relationships between characters than stories written under normal classroom conditions, especially through dialogue. On the other hand, stories written after the game contained fewer location descriptions than normal classroom stories. Five case studies are presented in order to show how the game affected pupils of varying literacy levels, personality and attitude to school work.

Chapter Eight describes ongoing and future work, including a recently conducted new field study with a version of the virtual environment in which the role-players communicate by speaking rather than typing. Additional areas for fruitful further research are suggested.

Chapter Nine summarises the main contributions and findings of this thesis, with reference to the research questions outlined in Section 1.5

2 Educational Background

2.1 Introduction

This chapter describes educational practice in the areas of writing instruction and drama. The educational aim of the virtual role-playing environment is to encourage children to write stories which portray the characters' emotions and relationships in a thoughtful way. Section 2.2 focuses on imaginative writing instruction by addressing the following questions: what insight into writing education can be gained from social cognitive theories of writing? and what methods do teachers use to teach children how to write stories? Improvisational drama can be used to help children to gain insight into story characters. Section 2.3 describes some methods for teaching drama, including story drama and role-play, and explains how these activities can be used as a preparation for imaginative writing. The virtual role-play environment is a computer based adaptation of real-life dramatic role-play. The requirements of this virtual role-play environment, drawn from the educational practices described in this chapter, are outlined in Section 2.4. There is a chapter summary in Section 2.5.

2.2 Imaginative Writing

This section explores issues relating to children's imaginative writing. Section 2.2.1 briefly describes some theories of writing which are relevant to the virtual role-play environment and imaginative writing instruction in general. Section 2.2.2 outlines methods which classroom teachers use to teach children how to write stories.

2.2.1 Theories of Writing

This section examines some theories about the writing process and the development of writing skills in children. Writing a story is a cognitive process which takes place in a social context. As an illustration, consider a child who is writing a story. As the child writes, she is using her social and cultural knowledge of language to create and shape her story. Her writing skills developed initially from spoken language, but she has learnt to adapt the style of spoken language to fit different contexts. In creating her story, she is drawing on knowledge of narrative which she has absorbed through

listening to adults read and tell stories, watching films and TV, and through social-dramatic play with her friends. The following sections describes different aspects of the story writing process in more detail. Section 2.2.1.1 reviews some cognitive theories of how a writer composes a story. Section 2.2.1.2 focuses on the different modes of written discourse taught in schools. Section 2.2.1.3 discusses the relationship between spontaneous speech and writing. The development of narrative skills through socio-dramatic play is discussed in Section 2.2.1.4. Section 2.2.1.5 discusses the process approach to writing instruction which has been adopted in Scottish schools.

2.2.1.1 Cognitive Theories of Writing

Writing can be seen as a problem solving process (Flower and Hayes, 1980). As the writer tries to decide what to write she has a number of constraints to satisfy. For example, each new sentence must relate in some way to the preceding text, it must fit with the plot of the story in some way, and it must be phrased appropriately for the style of the piece she is writing. Writing is difficult because it involves constant consideration of multiple constraints.

Sharples (1998) states that “a writer composes to communicate to achieve a human effect, by designing text within constraints.” (p. 101). He considers writing to be a form of creative design. From this perspective, problem solving, in the sense of Flower and Hayes, is only part of the creative design of writing.

As with all design problems, writing tasks are always incompletely specified, and a number of possible written compositions will meet the constraints of the problem. Just as there are a number of equally useful design methods, approaches to writing also vary. Some writing approaches may be particularly suitable for certain tasks, and some individuals may favour a personally productive strategy. Design methods are often iterative; the designer can continually augment and amend his design until he runs out of time or money. The same is true of writing, redrafting and editing.

In Sharples’ model of writing as design, three main activities take place during the composition process. These are: *planning*, *composing*, and *revising*. The writer

swaps between these activities at different stages of writing, and the proportions of time spent in each activity and the sequence of activities varies between writers. For example, the children's author Dick King Smith does very little planning of the plot of his stories. Once an initial idea occurs to him, he starts to write without knowing where the story will end up (Scholastic Writer's Workshop, 1995). Bernard Ashley jots down observations for his stories in a notebook and when he has time to write, he reviews his notebooks for ideas. When writing "Dinner Ladies Don't Count", he had planned it to the extent that he could write it in one sitting (Scholastic Writer's Workshop, 1995). Jill Paton Welsh spends a good deal of time revising her stories, both as she writes and after the first draft is complete. She redrafts five times, one each to perfect the plot, setting, characters, dialogue and spelling.

Within each activity, there is a cycle of generation, interpretation, contemplation and specification. During the generation stage of the composing phase, the writer is engaged in putting words down on the page. The other stages require reflection. Once the words are on the page, the writer needs to review and interpret what he has written, contemplate ideas to include in the writing, and specify how these ideas should be structured. According to Sharples (1998), children under ten years old lack the cognitive skills to monitor and control their own language use, and so spend all their composing time generating text. In terms of Bereiter and Scardamalia's theory of children's writing strategies (1987), young children get stuck in a knowledge telling strategy. Knowledge telling is a "what next?" strategy. The most recently written sentence is used as an aid to retrieve a related idea from the writer's long term memory. Although the resulting sequence of events follow on from each other, the overall plot may be incoherent. The child's attention is focused on writing down each new association and he does not have any attention to devote to reflection about what he has already written.

Once the child begins to develop meta-cognitive skills, he may attempt to use the knowledge transformation strategy (Sharples, 1998; Bereiter and Scardamalia, 1987). Using this strategy the writer attempts to organize the content of the writing around a structure suggested by his knowledge of the purpose, genre and audience for the piece. In the narrative genre, this could involve shaping the sequence of events

around a plot, showing the effects the events have on a character, or using literary language.

In the planning stage, knowledge telling and knowledge transforming strategies are both useful but for different purposes. Sharples (1998) identifies four aspects of creativity which are required for generating ideas for writing. These are *associational thinking*; *idea flowing*; *problem solving* and *daydreaming*. Associational thinking and idea flowing are knowledge telling strategies. Associational thinking, e.g. brainstorming, is a highly focused activity where the writer is deliberately listing a number of ideas. Idea flowing is a low focus activity where the writer is “on a roll” and ideas occur in the writing without conscious effort. A highly focused knowledge transformation strategy is problem solving where the writer constructs a plan for the composition and slots his ideas in around a preplanned structure. A low focus knowledge transformation strategy is day dreaming. This involves “picturing an experience as an entity to be moulded and polished” (Sharples, 1998; p. 49). In narrative writing, this period of day dreaming can be important for reinterpreting or placing structure on a personal experience. It is a period of reflection for drawing out the most important aspects of experience, or identifying “the moral of the story”. During day dreaming the writer can remember and reflect on their personal experiences.

The virtual role-play activity can be seen as a strategy for generating characterization ideas for a story. In the Educational Drama section (2.3) the reflective and experiential nature of role-play is discussed. The role-player can both experience emotion in role, and reflect on this emotion as herself. The purpose of the debriefing session after role-play is to help the role-players structure, generalize and make explicit the feelings and relationships they encountered. In other words, it is a means of transforming their knowledge about the experience, as in the problem solving example above.

2.2.1.2 Writing purpose

Britton et al. (1975) classified the types of writing produced in schools as transactional, expressive and poetic according to the writer’s purpose. If the author’s

main purpose is to inform, the writing is classified as transactional; if the author is using writing to explore feelings, emotions and opinions, it is expressive; and if the writing is intended to give the reader aesthetic pleasure in its use of language, then it is considered to be poetic. The functions vary according to whether the author is playing the role of *participant* or *spectator*. The distinction between these roles lies in the involvement of the author; in other words, the distance between the author and the event he is describing. Britton et al. (1975, p83) write “The more fully an utterance meets the demands of some kind of participation in the world’s affairs, the nearer will it approach the transactional end of the scale: the more fully it satisfies the spectator-role demands, the nearer it will move to the poetic end. The move in both cases is from an intimate to a more public audience.” A participant is involved in a situation in the here and now while a spectator is distanced from the situation, perhaps because they are reflecting on it, or because they are imagining it. Writers of transactional pieces are participants because they are engaged in convincing, educating, recording and otherwise involving themselves in the world’s affairs. The transactional writer is writing to get things done. Poetic writing, on the other hand, requires the author to spectate on a situation, to use the resources freed by not being actively involved in the situation at the time of writing to comment on and to gain perspective about the situation. The poetic writer is writing to give pleasure.

Britton et al. (1975) hypothesise that children learn to write first expressively, and that skills used in this form of writing can be adapted to produce transactional or poetic writing. Expressive writing can be written from the role of either participant or spectator, and often one expressive piece contains both. A shift from expressive to transactional writing requires the writer to assume only the role of participant, while the shift from expressive to poetic writing requires the writer to shift to the role of spectator. This analysis of writing is consistent with the results of a corpus based, quantitative linguistic analysis of written and spoken language (Biber, 1986). Biber found that one of the three dimensions which distinguish between various types of written and spoken language is “reported versus immediate style.” On this scale, the linguistic features of face to face conversations (expressive) lie mid way between those found in fiction (poetic) and in professional letters (transactional). Note,

however, that Biber's results show that there are two other dimensions along which spoken and written texts of various types differ ("interactive versus edited" and "abstract versus situated"). Britton's analysis of writing purpose is perhaps oversimplified, but the notion of the stance that the writer assumes is relevant to this project.

The goal of the Ghostwriter project is to help children to write more effectively in expressive and poetic modes, by writing about the thoughts and feelings of the story characters. The poetic techniques for conveying character and setting in a story are discussed in Chapter Three. In the Scottish National curriculum, writing is divided in functional writing, personal writing and imaginative writing. These respectively correspond to transactional, expressive and poetic writing as defined by Britton et al. (1975). One difference is that poetic techniques can be used in both personal and imaginative writing. The distinction between personal and imaginative writing is related to whether the account represents real events.

Stories written after the virtual role-play activity are a blend of personal and imaginative writing – they are accounts of fictional events which the authors experienced. The section on educational drama makes the case that role-play encourages pupils to reflect on their thoughts and feelings. The role-players are both participant and spectator during the role-play. When writing stories afterwards, they may reflect further on their experiences and heighten them for the reader by using poetic techniques.

2.2.1.3 The relationship between speech and writing

The first mode of discourse children learn to use is spontaneous spoken language. In a comparison study of adults' and children's spoken and written discourse, Danielewicz (1984) noted that children are able to use the same linguistic strategies as adults in spontaneous speech. She suggests that "8 –12-year-olds have developed spoken conversational forms that change very little with maturity." (p. 248). As spontaneous speech is the most basic linguistic form and is the first to develop, children learn to adapt speech strategies for other communicative functions, including a variety of writing genres. The new communicative strategies do not

replace the old strategies; speech strategies appear to remain intact in coexistence with other forms (Danielwicz, 1984).

Sperling (1996) reviews research on the development of written language skills from spoken language. She discusses the problems that arise for children as they try to adapt their spontaneous spoken language strategies to written transactional language. One of the main problems is audience. In spontaneous speech, the conversational partner can respond to the speaker. The conversational partner: provides responses which will redirect the conversation; asks questions and seeks clarification thus reducing the onus on the speaker to be clear, complete and accurate; and her presence serves as a reminder as to the appropriate social conventions which should be used to address her. In contrast,:

“writers are perceived as communicating to persons who cannot, in this explicit conversational sense, pitch in. Thus, writers always confront the puzzle of an absent interlocutor. Learning to write means, in large part, learning to solve this puzzle.” (Sperling, 1996; p. 65).

She supports this view by citing studies where experimenters have studied the effect perceived audience has on students' writing. Writing where the writer has adapted for a particular audience is usually higher in quality than writing which is not adapted for audience. When writers are given assignments where a specific rather than imaginary audience is specified, this has more of an effect on their compositions; similarly, writing for a specific audience who is not the teacher has a greater effect on the composition (Sperling, 1996; p. 66). As an extension of this, dynamic interaction between writer and reader can be beneficial when incorporated into writing instruction. “Strongly interpreted, such instruction promotes real conversations whether spoken (in pairs or larger groups) or written (in writing exchanges), on the assumption that such conversations inform, and can be extended by, students' subsequent writing.” (Sperling, 1996; p. 69). Examples of this type of instruction are the writing conferences between teacher and pupils used in the process approach to writing (see Section 2.2.1.5), sharing pupils' writing with the class, and pen pal projects.

Bereiter and Scardamalia (1982) report empirical evidence on the effects the lack of a conversational respondent while writing on novices' compositions. In a study of children in grades four to six, they found evidence to support the hypothesis that children try to use a spoken mode of interaction in writing. They observed that the children's writing on topics they knew well was short and underdeveloped; if questioned on the topic, however, they knew far more than they had written. In general, the writing was the equivalent of a conversational turn. The writers stopped at the point where a conversational partner might respond. It was found that children would write more on a subject if they were initially asked to write as much as possible and were prompted to continue at points when they claimed to have nothing more to write. These very simple interventions tripled writing output. The prompts were content-free motivational prompts such as "You're doing well. Can you write more?". Bakunas (1996) found that discourse-related prompts which suggested a structure for ideas were even more helpful than purely motivational prompts in the context of generating ideas for an essay.

Hidi and Klaiman (1984) investigated a stage intermediate between spontaneous speech and written essays – written dialogue, where the child writes from the points of view of two different people. They compared these written dialogues to opinion essays written by pupils in grades four and six. While the written dialogues were longer than the opinion essays in sixth graders, in measures of topic ideas and principled argument strategies, the opinion essays for both age groups were superior. The dialogues had more restatements, repetitions and elaborations than introductions of new ideas. This reflects the redundancy required in spoken communication. It is not surprising that writing dialogue does not help to structure opinion writing. Formal oral discussion and debate is a specific skill which children may not have much experience with. They are more likely to have been taught how to write an essay than how to argue intellectually with their friends.

An intermediate stage between speech and written stories may be helpful to children if they are familiar with speaking in a particular mode. Referring to Britton et al.'s modes of writing, children are most likely to be familiar with speaking in expressive mode. Children also learn narrative competence at an early age in oral language

through thematic fantasy play (Galda, 1984). This is discussed further in the next section.

The virtual role-play environment is arguably intermediate between spoken and written language because each role-player types messages in response to messages from other role-players. The role-players have conversational respondents to prompt them to continue the dialogue. Unlike pupils in the Hidi and Klaiman study, the role-players are not asked to imagine both sides of a dialogue. It is likely that the real time writing with conversational respondents as a preparation will make the task of writing dialogue in the story easier.

2.2.1.4 Narrative and Play

This section focuses on the development of narrative skills. Children develop their concept of narrative and the ability to create it through listening and speaking. They can orally create and retell stories long before they are able to write them. The narrative quality of learner writers' written stories is far below what they are able to produce orally.

Children can recognise well formed narratives at an early age and learn to retell narrative roughly between the ages of three and four (John, Horner and Berney, 1970). John, Horner and Berney identified four stages in retelling a story aided by picture sequences of the plot: sequential picture labeling; the skeleton story; the embroidered story; and the accurate and concise story retelling. The children were read a story as they followed the illustrations. Afterwards they were asked to retell the story with the illustrations as a memory aid. The youngest children did not manage to retell the story; instead they stated objects or story characters in each picture. At the next stage, they were able to retell the basic structure, or skeleton of the story. They could link the contents of one picture to the previous picture. The next stage was the embroidered story. At this stage (usually by first grade) the children created a story from half remembered, half invented events. They introduced new elements into the narrative, and changed elements of the original story. The last stage was an accurate and concise retelling of the original.

Storytelling is an interesting form of spoken language. In the previous section the discussion about the development of writing skills from spontaneous spoken language mentioned the problems caused by absence of input from a conversational interlocutor during writing. In storytelling (in Western cultures) the listener does not usually verbally interact with the speaker during the story. It is an expressive monologue (John, Horner and Berney, 1970) in which the speaker must adjust the content based on input from the listeners' facial expressions and body language alone. This gives some feedback on the listeners' affective responses to the story, but it doesn't give any prompts about what comes next in the plot. As in the knowledge telling strategy for writing (see Section 2.2.1.1), the speaker can use the last event described as a cue to help remember the next plot point. After a pupil has mastered writing to the point where the mechanics of writing is not a problem, writing stories may be an easier task than telling them because he has an external representation of the plot in the form of the text he has generated so far. This would depend on whether the usefulness of affective feedback from an audience is outweighed by the memory aid of an external representation.

Children's early experiences with narrative from hearing and retelling family anecdotes or literary stories is useful to them when it comes to writing stories. Immersion in children's literature and storytelling at home can develop children's imaginative storytelling and story creation skills to a high degree (Fox, 1993). In five case studies of preschoolers creating and retelling stories, Fox found that the playful stories produced by these children mirrored the literature they were familiar with at the level of word use, sentence construction, adaptation of ideas, and plot structures. Analysis of the stories lead her to believe that as the children told the stories, they were engaged in a form of verbal symbolic play:

“As they narrate the stories, the children show their pleasure in their own inventions; they mock, laugh, joke, exaggerate, sing, whistle, make strange noises and give their characters funny voices. They invent worlds peopled by lions, bears, rabbits, monkeys, witches, giants, robbers, policemen, heartless mothers and small children. They make literal use of magic and coincidence, extreme forms of punishment, a great deal of violence and much fear and suspense.” (Fox, 1993; p. 25).

Inventions of this sort can also be found in socio-dramatic play and thematic fantasy play between pairs or groups of children.

Socio-dramatic play involves imitating the player's real life experiences through actions and speech. "It includes pretending about objects, actions and situations while verbally communicating within a play frame with at least one other player." (Galda, 1984; p. 106). Thematic fantasy play involves the same activities except that the play is centred around imaginary events which the players have not experienced in real life. Both forms of play involve the creation of narrative.

During play the children jointly negotiate a story through talk. There are two types of talk: *enactment*, where the children are in role taking part in the story; and *planning* where they negotiate, organise and manage the play (Sachs, Goldman and Chaille, 1984). Enactment and planning occur all through the play. The players switch out of enactment mode to planning mode to direct the narrative, for example by assigning new roles ("You be Darth Vader and I'll be Luke Skywalker"), suggesting a new episode ("Let's do the bit on the Death Star") or indicating that an object is to be used symbolically to stand for something else ("Pretend this is my light sabre").

Very young children create stories during "Let's pretend" games with their friends. Galda (1984) reports a study of second grade children who were asked to retell *Little Red Cap* after hearing it read aloud. One group took part in a discussion after hearing the story but before retelling it, another group drew pictures from the story and another group played out the story with their friends. Analysis, using Labov and Waletzky's 1967 scheme, showed that the retold stories after thematic fantasy play were qualitatively richer than the other stories. "Playing about a story seems to result in a greater understanding of cause and effect and the motivations and emotional responses of characters. It seems to aid the shift from focus on the physical events in a story to the more psychological, character oriented focus." (Galda, 1984, p. 114).

The joint construction of spoken narrative in fantasy play is closer to spontaneous speech than oral storytelling, yet it is also good practice for creating written stories because it makes the planning and organising processes of writing apparent. Hall and Robinson (1995) make the case that the process by which a narrative is constructed

in dramatic play is very similar to the processes authors use to create stories. The switch between enactment and planning is similar to the writer's switch between composing, revising and planning in Sharples' model of the writing process (see Section 2.2.1.1). However, in dramatic play the presence of another player requires the child to make the planning explicit, and differences of opinion may force plan revision.

Sharples (1998) argues that children below around eleven years old do not reflect on their writing because they lack the meta-cognitive skills to do so. They are capable of monitoring the narrative quality of other people's stories, but not their own written stories. In dramatic play, the children can review and monitor their friends' utterances to test whether they fit into the unfolding narrative. Even when the children gain the capacity for self reflection in writing, preparation of the story in conjunction with friends is likely to make the task easier. The virtual role-play environment can be seen as a form of thematic fantasy play designed to help pairs of children collaboratively prepare for story writing.

Both peer-peer social dramatic play and models of narrative provided by adults in the form of oral storytelling, songs and books can be beneficial to children as they develop narrative skills. The influences of adult provided content on children's writing and on story creation software are discussed in Sections 2.2.1.5 and 4.4.2.6 respectively.

2.2.1.5 The process approach to teaching writing

Graves' process approach to writing (Graves, 1983) has been influential in the development of the Scottish National Curriculum (Ellis and Friel, 1998). The process approach is a holistic method of teaching writing, centered on the idea that children are keen to express themselves. The approach specifies that children should write regularly and frequently, they should decide that they want to write, they should draft and redraft their work, they should discuss it with their teacher and other class members, and eventually they should have an opportunity to publish it. The teacher's role is to model good writing practice and to offer advice and assistance when the pupil needs it. The children should have control of the writing in order to foster a

sense of ownership and pride in their writing. This in turn will increase their motivation to write.

The process approach has features in common with Vygotsky's work on children's language acquisition (Gee, 1996). Vygotsky's theory was that children acquire language through social interaction. They are not explicitly taught about language; they absorb it from listening to and interacting with other language users. Cazden (1996) notes that there is a "seeming contradiction" between Vygotsky's position on writing in his books "Thought and Language" and "Mind in Society". In the former, he states that the development of writing does not repeat the development of speaking, and in the latter he states that children should be able to learn to read and write in the same way as they learn to speak. In "Thought and Language", the claim seems to be that unlike spoken language, writing skills do not develop without explicit instruction. In "Mind and Society", the claim seems to be that children should learn to write without explicit instruction.

Cazden notes that different attempts to resolve these contradictions lead to different perspectives on what the role of the writer instructor should be. A key idea in Vygotskian psychology is the zone of proximal development: the difference between what a child can do by herself and what she can do with some help. The teacher's role is always to help the child work within the zone of proximal development by providing assistance (known as scaffolding). However, there are differences of opinion about whether the teacher should supply explicit information about language as part of the scaffolding. Cazden contrasts the approaches as follows. Children acquire speech without explicit instruction. If writing is to be acquired in the same way as speech as Vygotsky suggests in "Mind and Society", then the teacher should scaffold her pupils by placing them in a community where they can absorb the conventions of written language through social interaction. There should be no explicit instruction. On the other hand, if writing development does not repeat speech development, as Vygotsky states in "Thought and Language", then this allows for explicit instruction on the conventions of written language. Graves' process approach to writing, and to a greater extent, the adaptation of his approach in the Scottish

National Curriculum, offers a compromise. In the process approach, there is a place for both implicit and explicit learning about language.

Graves' process approach to writing puts children in a discourse community of writers where they "pick up by immersion the mores, conventions, rules, forms, and functions" (Gee, 1996; p. 273) of the community. The young writers acquire written language from social interactions with their peers and the teacher in the writing conferences and sharing time. Vygotsky's zone of proximal development is supported by the teacher's short, timely and appropriate interventions both while the child is writing and at regular times in the week (as described in Graves, 1983). Although the teacher may give explicit instruction on specific written language features such as direct speech, such a lesson would be motivated by a writer's need to distinguish between speakers in a story.

The process approach may place young writers in a discourse community, but it may be that that community excludes some pupils (Flower, 1994; Lensmire, 1994; Smith and Elley, 1998; Czerniewska, 1992). This may be because there is a clash between the kind of literacy which is valued at home and the literacy taught at school (Flower, 1994; Czerniewska, 1992). For example, Czerniewska makes the point that members of discourse communities where the written word bears little authority are at a disadvantage in schools. This is one argument for explicit instruction about the conventions of written language. Pupils who come from a background which values different kinds of literacy from the classroom culture, will be at a disadvantage when it comes to absorbing written language through social interaction. Flower (1994) argues that explicit instruction about written language conventions and genres will help to redress this balance. As discussed in Section 2.2.2, Scottish schools combine the process approach with instruction and discussion about language appropriate to genre.

Another problem is that the classroom writing community may reinforce unhealthy race, class and gender biases to be found in the classroom culture. This is related to the control the children have over selecting their own topics, and the taboo Graves' process approach places on criticizing the content of children's stories. Graves

(1983) mentions that one problem a teacher should try to overcome is the temptation to “redirect the writer to a more morally uplifting subject” (p. 128). Lensmire (1994) found that the writing topics chosen by his pupils can be unoriginal, and clichéd, and are often based on common ideas in T.V. shows. Stories are often gender stereotyped and violent (Czerniewska, 1992). Some stories may feature violent or insulting interactions between class members, and because of class wide publishing, this can cause distress and hurt to those involved. Lensmire (1994) describes how the writing workshops reinforced the social structure of his class; children worked in same sex friendship groups and rejected children from poorer backgrounds. One unpopular girl was doubly disadvantaged during the writing workshops. She was the subject of nasty stories by other class members, and she was reluctant to take part in peer sharing of her own work for fear of ridicule. Lensmire writes:

“Workshop advocates have consistently criticized the traditional, controlling, fault finding writing teacher, and promoted instead a supportive teacher who finds meaning and who shares the craft of writing with students. The role they have imagined for teachers, however, assumes that teachers will never have to take up a critical stance in relation to children’s work and consequently, drastically underestimate the sort of intellectual, moral/political and aesthetic influence and leadership actually required of writing teachers if they are to be responsible in their work with children.” (Lensmire, 1994; p. 389).

While the idea that children should be allowed to write what they please is seductive, there are educational advantages to guiding them towards topics which will help them to develop new writing skills, think of original ideas and avoid hurting other people. The class teacher’s greater experience can help the child to monitor his writing progress and suggest ways to improve it. She can also help the children to create a healthier social atmosphere by working to break down harmful interactions between the pupils which are stereotyped by gender, race or social class.

Although the story of the virtual role-play environment was not created by children, it was designed to help children respond empathically to the other story characters. Interacting with peers as a fictional character may help to break down the normal social roles within the class. Note, however, that the role-players in the field studies described in Chapters Six and Seven worked in friendship pairs for convenience.

2.2.2 Writing in Scottish Schools

The Scottish Curriculum sets out guidelines for the teaching of the writing process, which give the teacher a clear role in guiding pupils towards suitable choice of content while allowing them to control their own skills development. It also combines implicit and explicit approaches to teaching about written language conventions. The Scottish Council for Research in Education specifies a three stage writing process which teachers should adopt (SCRE, 1995): preparing for writing; drafting and redrafting; and preparing for publishing. In the phase of preparing for writing, the teacher's task is to help the pupils generate ideas for their writing and to plan how these ideas will unfold in their writing. She will also ensure that the children are aware of the style of language appropriate to genre, both by supplying them with examples of writing in a variety of genres, and by leading class discussions about language devices they could use when writing in these genres. The suggested genres include functional, personal and imaginative writing, and encompass sub genres such as newspaper reports, instruction booklets, diaries, letters, stories and poems. During the drafting and redrafting stage, the pupils use a plan to write first and subsequent drafts. The plan itself may be modified during the drafting. The pupil amends and adds to her drafts based on her own evaluation of her work and feedback from the teacher and other pupils. At the publishing phase, the teacher helps the pupil to ensure that surface features of the writing such as spelling, handwriting and layout are suitable.

The preparation phase of the writing is most relevant to this discussion. The guidelines suggest that the teacher should provide motivating stimuli for writing which appeal to the children's interests. This may come from children's literature, interviews with people outside school (Graves, 1983), photographs, TV programmes, visitors to the class, class field trips and class discussions. Another task for the teacher is to help the pupils to identify individual aims for their writing. This includes encouraging the children to think of topics as well as specific skills development. Once the pupil has decided what he wants to achieve in a piece of writing, and what he wants to write about, the next stage is to generate ideas. The teacher can facilitate this by organizing brain storming, and conferencing sessions

with herself and groups of other children as well as by providing time for the child to sit quietly and think.

2.2.2.1 Preparing for writing

An important aspect of the process approach to writing is preparation. Adult authors devote a good deal of time to thinking about their stories before they begin to write them (as an example, listen to the recorded interviews with authors in Scholastic Writer's Workshop, 1995). It is evident that children can write stories to a higher standard if they have a chance to think carefully about them beforehand. The question is: what are the most effective methods of helping children to prepare for writing a story? Preparation work using other media and art forms can help pupils to rehearse ideas for written stories. Vygotsky believed that the ability to write emerges from the earlier developed skills of playing and drawing. It may be easier for a child to explore story ideas in a familiar medium before going on to record the story in the less familiar, written form. Features unique to different media, such as the immediacy of drama may, enrich the stories written afterwards (Moore and Cadwell, 1993). This section discusses some writing preparation activities which teachers use, including drawing, drama, discussion, storytelling and reading. Preparation methods used by the classes who took part in the field study described in Chapters Six and Seven are highlighted to explain the teaching methods in use in this particular school.

Preparation for story writing may involve teacher-led class discussions about plot, characterization and setting. Wing (1991) suggests that the teacher should pose questions such as "What is going to happen? Why will that happen? Where will the story take place? Have you got a picture of the setting in your mind? What words will you use to describe the setting? Who are the main characters? How would you describe the nature of each character?" (p. 87).

Class discussion may be supplemented by activities such as drawing a strip cartoon, writing character profiles, telling the story to a partner before writing it down, and preparing a story map.

Wing (1991) suggests that reading fiction can be a springboard to writing. The pupils can change aspects of a well known story as an exercise in particular aspects of writing. For example, a familiar fairy tale such as “Little Red Riding Hood” could be rewritten from the perspective of the wolf, or the characters from several fairy tales could all feature in a new fairytale. The setting of a traditional tale could be transported to the modern day. The teacher could also read a story out loud, stop at an exciting part and ask the children to write what happens next.

Oral storytelling can also be an effective preparation method for story writing. The participants in the field study described in Chapters Six and Seven were accustomed to regular storytelling sessions where a visiting storyteller told them stories and discussed aspects of the story plot, characters, setting and language use. The children were encouraged to make up their own stories (perhaps with a similar theme or structure to stories they heard) and to tell them to their classmates. Creation of stories to tell was a preparation for writing the stories down. This method was particularly appropriate in that school because some of the pupils came from traveller families with a strong oral tradition. The teachers found that the familiar task of telling a story helped the children to create a story which could be written down afterwards.

The participants in the field study were also accustomed to drama exercises such as group improvisational role-play. Working in groups of four or five, the children co-create a story by improvising from the point of view of different characters in the story. They agree the basic plot beforehand through discussion, rehearse the scene in the group and eventually present the scene to the rest of the class. Each group member then writes her own version of the story based on the drama work. For example, a group of four children acted out a scene where some children and their teacher find themselves transported into a storybook just as they read the most frightening part.

There are a number of story preparation methods in use – which of these are most effective? Moore and Caldwell (1993) conducted a classroom study of sixty-nine 2nd and 3rd grade children to determine the effect of three preparation activities on the quality of the children’s written narratives. The study took place over fifteen weeks.

They studied the effect of drama, drawing and discussion on the quality of the children's stories as assessed by a narrative writing scale devised for the project. The analysis scale combined holistic, impressionistic assessment and analytic scores for organization, ideas, context and style.

All the pupils started a writing session with a teacher-led discussion about elements of narrative writing such as plot, characterization and setting. The drama group then worked out ideas for stories through individual role-play, improvisation of the main scenes in pairs, and presentations to the class. The drawing group created visual storyboards of the plot, characters and settings of the story. The control group started writing their stories immediately.

A repeated measures analysis of variance over time revealed that stories produced by both the drama group and the drawing group were of significantly higher quality than the stories produced by the control group. The effect size was large; the scores for drama and drawing group were two standard deviations higher than the control group. There were no significant differences between the drama and drawing groups. Note, however, that as the control group had less preparation time overall, it could be that the effect is due to the extra preparation time rather than the content of the drama activity. Moore and Caldwell (1993) conclude:

“The results of this study support the position that prewriting or rehearsal has an impact on writing quality. As they involve creative products in themselves, drama and drawing allow the writer to test out, evaluate, revise, and integrate ideas before writing begins. Thus, drama and drawing are more complete forms of rehearsal for writing than discussion.” (p. 109).

In contrast to Moore and Caldwell's classroom study, Kellogg (1994) describes some laboratory studies of undergraduate writers which investigated the effects of various types of planning on writing quality. Kellogg compared the effect of mental and written planning on the quality of essays written by undergraduates. There was no significant difference between the quality of the essays produced after written or mental planning, although there was a significant difference between the quality of planned and unplanned texts. Thus, it seems that some planning of writing, whether it be mental or written, is beneficial for college age students who are writing essays.

However, these results may not apply to younger pupils engaged in narrative writing. For example, it may be the case that some primary school children do not have the maturity to focus on the unstructured task of mentally planning a story, and that these children would benefit from scaffolded planning with the help of peers and a teacher.

To summarise: other art forms can be used to help children prepare to write a story. Class discussion, follow on work from reading, oral storytelling, improvisational drama, and drawing can all be used to rehearse ideas for a story.

The next section concentrates on the sorts of educational drama techniques which can be used as preparation activities for writing and identifies how drama could help children improve characterization in stories.

2.3 Educational drama

2.3.1 Educational aims of drama

Drama education prioritises the development of the child as an individual. It focuses on the thoughts and feelings of the child, rather than on the transmission of facts and intellectual skills. McGregor et al. (1977) state that the role of a drama teacher is :

“To encourage the child to deepen and challenge his perceptions of himself and his world so that he gradually begins to make sense of the complexities and subtleties of his experience; acknowledges, accommodates and reassesses his world view in the light of new experience.” (p. 23).

Drama exercises can help to change pupils’ attitudes and behaviour through experience. It is easier to imagine how another person might feel under certain circumstances if one has experienced something similar, even symbolically as part of a role-play. Experiencing a situation through the immediacy of drama is more likely to evoke emotion than reading about it (van Ments, 1983).

Drama is a fertile, safe environment for encouraging children to empathise. Social psychologists identify three aspects of empathy (Levenson and Rauf, 1992). The first aspect is *knowing* how someone else feels; the second is *feeling* the way someone else feels and the third is responding compassionately to someone else’s distress.

Participants in drama can empathise with the characters through role. Role is a mixture of the self and the adopted persona, the character whom the child is playing. In role, “learning is viewed internally but from a new or different perspective” (Booth, 1994 p.21). The child may experience the emotions of the adopted persona (feeling what someone else is feeling) while reflecting on this emotion at a distance (knowing how someone feels). She may also respond compassionately to the distress of the other characters in the role-play after identifying how they feel. Booth (1994) writes “This type of emotional/cognitive experiencing, followed by reflective distancing, is the hallmark of drama” (p. 27). McGregor et al. comment on this aspect of drama with the following:

“ Through drama the child explores problems and issues at the safety of one remove. He distances himself from them by behaving “as if”. It is a vicarious involvement by which he can feel sufficiently removed from the issues to reflect on them and get them in perspective, and sufficiently involved, in the “as if” sense, to deepen his understanding of them.”(p. 23).

Drama is also a suitable medium for older children to explore their emerging identities. They can explore :

“the boundary between what is me, what is other – through working on the problems of creating and representing roles and characters. Creating a character is a process of creating a fictional identity, which is both different from and the same as oneself” (Neeland, 1998, p. 37).

There is further discussion of identity exploration during online role-play in Chapter Four.

Assuming a role requires the pupil to make an imaginative leap from herself to another persona. McGregor et al. (1977) make the distinction between playing a role and playing a character. For them, assuming a role is representing a set of attitudes while playing a character requires the pupil to identify with and portray a personality. Portraying a role is necessary, but not sufficient for portraying a character. Neelands (1998) identifies the stages pupils go through as they learn to assume roles for dramatic performance. These stages chart the potential development of children working in curriculum grades C-E, roughly ages eleven to fourteen. At the beginning

of the scale is social acting: the projection of social roles such as teacher or parent and or an image of self such as being cool or uninterested in the opposite sex. The end point of the scale is aesthetic acting in the Stanislavskian tradition where the actor's self is masked by the "physical manifestation" of the adopted persona.

The first stage is "Public self in the social setting of the classroom". Here the pupil's self-consciousness forces her to act as her normal self when interacting with her classmates. The next stage is "Public self but operates as a role in the social setting of the drama". At this stage the pupil takes part in the drama and works in the fictional world, but responds to events as herself rather than an adopted persona. The third stage is where the pupil "operates as a role, but now projects a social or cultural attitude to events, which is different from normative or habitual self". At this stage the pupil begins to imagine and play with how another person might react to the circumstances in the drama world. The fourth stage is when the pupil "Operates as above but role taken is representative of a social or cultural group with its own history and characteristic response". Here the pupil has researched the background of the character and plays the character as someone who is characteristically different and has a sense of her past. If the pupil specialises in drama, she may learn to become a variety of physically and psychologically unique characters. In McGregor et al.s terms, pupils at stages one to four are representing role, while pupils at the more advanced stages five and six are representing characters.

There have been few empirical studies of the effects of educational drama. In a meta-analysis of the educational effectiveness of creative drama, Kardash and Wright (1987) state that the number of published studies in this area is very small, and call for more empirical research. A possible reason for the lack of scientific research is that drama is a humanities discipline and many practitioners would consider an objective evaluation inappropriate because the aim of the work is to develop individuals in subtle ways. However, Kardash and Wright's meta-analysis showed a moderate positive effect on elementary school children's oral language skills, self esteem and moral reasoning skills. They noted that it appears to have an "extremely beneficial" effect on role-taking abilities (Kardash and Wright, 1987; p. 17). These

findings support drama practitioners' claims, as outlined above, that creative drama exercises help children's affective development.

To summarise the benefits of drama education outlined in this section: drama supports the affective development of children in a safe, non-threatening environment. The immediacy of experience of another persona during drama activities, coupled with the reflective distance from the experience, create a situation where the pupil can empathise with other people and gain insight into people's attitudes and feelings in such a situation. Drama is also suitable for exploration of one's own identity and alternative identities.

2.3.2 Role-play

Role-play is a form of simulation used in teaching settings. It can be used for a number of different purposes including demonstrating a problem, demonstrating a technique, practicing a skill, reflecting on a situation, and increasing sensitivity and awareness of others. Van Ments (1983) states :

“It is highly motivating and enables students to put themselves in situations they have never experienced before; in particular it opens the way for them to put themselves in others' shoes...It can be used at different levels to teach simple skills of communication, to show how people interact and their stereotyping of others, and to explore deep personal blocks and emotions.”(p. 21).

During role-play a pupil imagines that she is in a particular situation and behaves appropriately to the situation. The role-player might imagine that she herself is in the situation (self), or that she is another person in that situation (an adopted persona). If she plays another person, that person could be fictional or real. If real, it could be another member of the role-play group, a person known to the role-play group or a stranger. The role-player interacts with other members of the role-play group through voice and gesture. There is usually a role-play leader whose job is to write the role-play specifying the roles and situation, guide the role-players through the role-play, and debrief them afterwards.

There is a distinction between role-play and performance drama. Role-players do not aim to entertain an audience. The purpose of the role-play is to increase the role-players' understanding of the situation, and to generate new ideas for handling such situations. The role-players need not be great actors; they only need to indicate their opinions and attitudes to their fellow role-players. Their aim is to feel and behave as their adopted persona would under the circumstances.

In terms of Neeland's stages of drama development outlined in Section 2.3.1, role-players are aiming for stages two to four. That is, the student should operate within the drama world, and respond to events as her own self (stage two) or as a person distinct from herself (stage three). She may reach stage four, where she assumes the role of a member of a particular social or cultural group. The point is that role-players not need to be skilled actors. Psycho-realism to the level where the role-player physically "becomes" another character in speech and gesture is unnecessary.

An important goal of role-play is relating the lessons learned from the interactions to real life. A debriefing session follows the role-play where the role-play leader leads a discussion to help the role-players identify what they have learned about the attitudes, feelings and behaviour of their roles under the circumstances. The role-play leader can help the players to decide what happened during the role-play, whether the role-play was true to life, and how the situation could have been handled differently. Van Ments (1983) suggests that the following questions should be asked in the initial stages of the debriefing:

"What did you think happened?; How did you feel about your decisions?; What did you think the other characters were doing?; What was your attitude towards the others?; How far did your attitudes, feelings and understanding change?" (p.136).

These questions lead on to a phase where the role-play leader asks the group to analyse the causes of their behaviour and come to some general conclusions about the way people behave under the circumstances of the role-play.

One of the advantages of role-play is that the participants are shielded from criticism by their adopted persona. It is a safe learning environment because their words and

actions during the role-play were not “real”. They were carried out by the persona, not the self. During the debriefing, the role-play leader make it clear that the behaviour under discussion is that of the persona rather than the self. In a non-therapeutic setting, the role-play leader avoids asking the role-players to discuss their own personal feelings deeply, and concentrates instead on how people behave in general.

2.3.3 Story drama

Story drama is the closest form of physical role-play to the virtual role-play activity. It stems from the idea that drama and stories can emerge from the imaginations of the participants rather than from the orders of a drama teacher or director. Booth (1994) defines story drama as “improvised role-play based on story” (p. 12). He goes on to say that story drama “allows children to at once become the co-constructors of a story, the story itself and the characters living within the story.”. This has an interesting parallel with the narrative virtual environments described in Chapter Four where the reader becomes the audience and the hero.

Booth gives an example of a story drama based on the old testament story of Jacob and his son Joseph. This drama started as physical play where the children pretended to construct a desert farm and tend the animals on it. This passed into a storytelling phase where the “farmers” gathered round a camp fire to exchange stories at the end of the day. The teacher in role spoke jealously of Jacob’s son Joseph and of the beautiful coat he had made him as a gift. This was intended to light a spark of injustice in the hearts of the farmers, and they plotted to be rid of him. Later in the drama the teacher played Jacob as he asked the miscreants where his beloved son Joseph was. Faced with a heartbroken father the role-players had to come up with some excuses for his disappearance, and for the first time began to understand what a terrible thing they had done.

Story drama may be based on a story which the teacher tells or reads aloud. The teacher may begin the drama session with an activity such as dance, play or singing. This might lead on to assigning roles, or groups of roles, to the children, and posing them with a problem to be solved or a decision to make. Typically this problem will

be moral or emotional in nature, and any solution to the problem will have a major impact on the group of characters in the story drama. To challenge the children and to avoid shallow or glib decision making, the teacher may change role during the drama to reframe the problem. The teacher can assume the role of narrator, leader, opposer, messenger or a low status person in the role-play group. The roles of opposer and messenger are particularly useful for changing the outlook of the role-players and forcing them to take another perspective. With these devices the teacher can effectively re-plot the story by introducing new obstacles. However, the teacher does not determine the outcome of the plot; resolutions must be decided by the children. The teacher in role can encourage the children to think deeply by “focusing the drama, elevating the language, and adding tension clarifying actions” (Booth, 1994, p55).

The benefits of story drama are many and work on various different levels. It affords both cognitive and emotional experience of a new situation, perhaps one which the child could never otherwise encounter. Coupled with a discussion guided by the teacher, the child's reflection on the experience can help him to integrate the emotional lessons he learned in role with his own emotional life (Van Ments, 1994). Another way of achieving this period of reflection is to base letter or story writing activities on the drama. When working with drama teachers often notice that their pupils are naturally using language which is appropriate to the situation. This language may be more sophisticated than their normal use in the same way that young children at play incorporate words from the adult realm which they imitate. The role-play participants can sense what language seems to fit the time and place, especially when this is modelled by the teacher. The challenging situation in which they find themselves may also require them to be more eloquent than usual. Finally, the opportunity to become someone else for a short time can be liberating for everyone, particularly for shy children. The shield of a pretend role may encourage the role-player to become more expressive and to contribute more to the group than she would as her real self.

2.3.4 Drama and writing

This section investigates the relationship between drama and writing. Neelands (1998) says that in drama :

“there will be a transformation of self, time and space. A virtual “reality” or “drama world” will be communicated within the actual context of the classroom, studio or theatre.” (p. 9).

This idea of reasoning about events in a fictional world is common to drama and writing. Moore and Caldwell (1993) say “Narrative writing relies for its success upon creating and manipulating an imaginary world”. (p. 101). The difference is that there is an interactivity and immediacy about drama which is not present in story writing. Booth (1994) writes that “Drama is the act of crossing into story” (p. 40). In general, “having crossed into the story” is likely to make the task of writing it down easier. The task of creating a new story and imagining all the characters and relationships in it has been simplified into writing a personal experience. The task is now to find an interesting and entertaining way to relate what happened in the drama. However, the child is still responsible for the creative content of the story because he took part in both the story drama and the writing.

Neelands (1998) argues that drama is a helpful preparation activity for writing at a range of achievement levels. He relates some of his pupils’ opinions of why drama can help writing. These are summarized below.

For students who find writing extremely challenging, it is easier to exchange meanings through spoken interpersonal language than through writing. This is akin to Bereiter and Scardamalia’s argument that written language is developed from spoken language (see Section 2.2.1.3). While the overall goal may be to improve story *writing*, allowing the children to rehearse the ideas for their story in the more familiar spoken medium will help to improve the quality of the writing, and motivate the children to put their story on paper for other people to see.

As drama is a social activity, pupils can pool their ideas and skills. When an individual pupil comes to write her story she can work with the ideas created by the

whole group. For pupils who find it difficult to think up ideas or to get started, group work may give them the impetus to begin. Furthermore, rehearsal of the story idea with other people may give the child a sense of what an audience will appreciate.

Drama presents narrative in an easily accessible way, with an emphasis on the emotions of a story. In combination with exercises such as interviewing a character in role, the pupils can gain more insight into the story characters and include this understanding in their written work. During drama work, the pupils can explore personal and social issues, and experience the heightened emotions of drama. Once they become emotionally involved in the drama, their feelings for the characters will help them to appreciate the theme or message of the drama work which will then be reflected in a higher level of writing. Improvisational role-play can help the pupils imagine the characters in the story –

“students discover more about their character from the way other role players respond to them. This experience helps students who are looking to include a wider range of perspectives and more fully rounded characters in their writing.” (Neelands, 1998; p. 34)

2.4 Virtual role-playing and writing

This section specifies the requirements for the virtual role-play environment based on the educational aims of the project. The virtual role-playing environment is intended to be a motivating preparation activity for writing imaginative stories. It aims to improve the characterization and setting in children’s stories. The experience of using the role-play environment and writing a story based on the adventure is intended to help raise the pupils’ self esteem, and to develop empathy skills. The virtual role-play activity is based on real life story drama methods. The role-players improvise in a virtual world, mediated by networked computers. The following features of the role-play environment were designed to take account of the issues identified in Section 2.3. The design of the environment is described in detail in Chapter Five.

- The children play fictional characters in an unfamiliar setting

- They communicate with each other by sending and receiving typed messages. These messages are stored and printed out for the role-players to look at afterwards.
- A role-play leader plays the part of different story characters, and while in role, facilitates communication, reasoning, and decision making. Her job is to present clear dilemmas to the role-players and encourage them to resolve the problems.
- The storyline of the virtual role-play activity was designed to encourage participants to think deeply about moral issues, and empathise with others.
- Participants should be debriefed after the virtual role-playing. The role-play leader should facilitate a discussion about the decisions they made in role, and help them to identify how they felt about the characters in the game. This is a knowledge transformation approach to generating ideas for the story (see Section 2.2.1.1).

The virtual role-play environment has several potential advantages over real life role-play. These are listed below. Nevertheless, physical story drama and other role-play exercises have their own strengths, including encouraging children to express themselves through voice and gesture. This work is not intended to replace physical drama activities, but to explore a new activity which could be particularly beneficial under certain circumstances.

- Using a virtual environment which is similar to commercial computer games is likely to be extremely motivating for the children. Many children willingly spend a great deal of time playing computer games at home and grow to be very skilled at playing them. Children are likely to appreciate a chance to use these skills at school. The general motivational effect of the virtual role-play environment, and the particular features which the children enjoyed most are identified in Chapter Six. The case studies in Chapter Seven focus on the effect the virtual role-playing activity had on individuals' willingness to write.
- The fictional world is presented graphically in the virtual environment. This is likely to encourage participants to suspend their disbelief and fully enter into the drama world. Booth (1994) relates his difficulties in involving particular children in fictional scenarios. The role-play environment may be particularly beneficial to children who find it difficult to see props and scenery as artifacts in the story

world. The relatively rich sensory experience of the virtual environment may help children to describe the setting of the story in more detail.

- A virtual role-playing environment is emotionally safer than physical role-playing in the classroom. Not only can the participants shelter behind a fictional persona; their communication is mediated by computer. For shy children, the opportunity to express themselves without having to worry about their physical appearance may be liberating. Pupils at stage one in Neelands' role development scale (acting as public self in fictional self) will be released from peer pressure to a certain extent. Computer-mediated communication is known to break down normal patterns of social interaction (see Chapter Four). This relaxation of normal social roles may help the participants to believe in the characters that their peers are portraying. It may also help to prevent social elitism and discrimination from colouring the writing the children produce afterwards (a problem identified by Lensmire, 1994).
- Computer-mediated communication is likely to break down normal patterns of interaction between the role-play leader and the participants. It may be hard for children to forget who their teacher really is when she is in role in physical story drama, and so their interactions with her characters may be influenced by this. In the virtual environment, the teacher can disguise herself. This makes it easier for him to portray *character* in the game rather than role.
- Communication in the virtual environment is through real time typed messages. This style of communication has aspects in common with both spoken and written language. The participants have conversational respondents who reply in real time, as in a spoken conversation. Yet, the messages are written. Bereiter and Scardamalia's research (see Section 2.2.1.3) suggests that responding to a child as he writes is a way to scaffold his transition from fluent spoken language to written language. In this activity the child can get help from his peers and the role-play leader for story ideas and examples of language use. Real time typed communication in a preparation activity may help pupils to plan the dialogue in their stories in a written form.
- Sharples (1998) comments that :

“Composing, then, is a process not of emptying the mind, but of actively reconstructing it. The most recently written text is an external record of ideas in a handy form that the writer can re-read to refresh memory and drive composing forward.” (Sharples, 1998; p. 92).

- As an extension of this idea, the transcript of the role-play session may help to remind the children of the language they used in the preparation session. The transcript can serve as a reminder of what happened after the previously written sentence. It is a memory aid, and a guide to the plot structure.

2.5 Summary

This chapter discussed relevant educational practices in imaginative writing and improvisational drama. Sharples' model of writing as creative design identifies planning or preparing for writing as an important aspect of the writing process. Moore and Caldwell (1993) found that when children rehearsed ideas for their stories through improvisational role-play, the stories they produced were of significantly higher quality than stories produced after only a class discussion. Story drama and role-play in general have a number of educational advantages in their own right, including developing children's affective skills such as empathy. Some skills of role-play – based around taking the perspective of another person – are required for writing imaginative stories with insightful characterization. The virtual role-play environment is designed to encourage the participants to empathise with the story characters and to make difficult moral decisions. It is an engaging activity, designed to motivate children and raise their self esteem. The central hypothesis of this thesis is that role-play in the virtual environment prepares pupils to write stories with effective characterization and setting. The techniques writers use to portray characters and describe setting are described in Chapter Three.

3 Assessing Children's Writing

3.1 Introduction

The field study described in Chapters Six and Seven assesses the effect of the virtual role-playing environment on characterization and setting in children's stories. This chapter considers the method for comparing stories written after the game with normal classroom stories. In Section 3.2 existing methods for assessing children's stories are examined for suitability to this field study. As none of the previous methods of assessing stories were appropriate, a story analysis scheme was developed specifically to record the characterisation and setting techniques used in children's stories. This scheme is described in Section 3.3.

3.2 Methods for assessing children's writing

This section considers methods of analyzing children's stories. Section 3.2.1 specifies the requirements for an analysis scheme suitable for comparing stories written after using the virtual role-playing environment to those written under normal classroom conditions. The next sections review methods teachers use to assess children's stories (Section 3.2.2) and story analysis schemes developed by previous research projects (Section 3.2.3). These methods of assessing children's stories do not meet the requirements of this study; and so the development of a new analysis scheme is discussed in Section 3.3.

3.2.1 Requirements of the story analysis scheme

A story analysis scheme is required to record the techniques young writers use to portray characters and describe the setting of the story. The scheme should record the use of these techniques in sufficiently fine detail to capture the effect that the virtual role-playing environment has on children's story writing.

The hypothesized changes in the children's stories will be in the content of the stories rather than in surface features such as handwriting, spelling, or grammar. The scheme should be applied to stories which have been typed, spell checked and

corrected for grammar on the grounds that readers' opinions of the story content may otherwise be biased by the quality of the surface features.

The role-playing activity is designed to encourage pupils to explore the feelings of the characters and the relationships between them. The personality of the characters will be expressed through their reactions to role-play events. The hypothesis is that stories written after this preparation activity will express the insight into the characters that the writer gained during the activity. Therefore, the analysis scheme should record the techniques that writers use to express personality, relationships and moods in a story. The atmospheric visual and aural virtual environment is hypothesized to have an effect on the setting descriptions of the children's stories. The analysis scheme should therefore also record techniques the young writers use to describe the story setting.

While it is hypothesized that the virtual role-playing activity will have some effect on stories written afterwards, the magnitude of the effect cannot be anticipated due to lack of previous research in this area. For this reason, the analysis should be sensitive enough to pick up very small changes in the frequency and variety of characterization and setting techniques.

3.2.2 How teachers assess children's stories

Haroun said in a low, small voice "What are you going to make me fail at now?"

Haroun and the Sea of Stories, p.71.

Teachers spend a lot of time responding to children's written work. Dunsbee and Ford (1980) list the ways in which teachers respond: by correcting, marking, grading, assessing, and evaluating. The definitions of these terms from Dunsbee and Ford are as follows. When a teacher corrects a piece of written work, the teacher indicates mistakes, omissions and suggests alterations. Marking and grading are activities which produce a single number or letter to indicate the overall quality of the work. Children may have their writing corrected, marked or graded on a regular basis; the teacher hopes her response will help the child to improve her writing. Assessment

and evaluation are terms for more formal, summative responses to children's writing. Permanent records of assessment are often kept in the school, shown to parents, other staff or other schools. Assessments of writing may have a large impact on the child's future. Evaluation is used to assess whether a pupil has grasped the content of a series of lessons. The teacher can use evaluation to decide whether to teach those lessons again or move on to a new topic.

Dunsbee and Ford (1980) and Coupe (1986) have studied the types of corrections teachers make to written work, and have highlighted several problems. Dunsbee and Ford trace the progress of one pupil throughout his secondary career by studying the corrections his teachers made to his written work in a variety of subjects. The teachers across subjects and across years used different conventions for indicating errors and omissions, their expectations of the writing were contradictory, and some teachers' comments were extremely demoralizing. The researchers make the case that this kind of correcting over the course of five years is likely to lead the pupil to believe that:

“what he writes will be consistently inspected for flaws and will rarely be praised. Furthermore, it is probable that Michael's attitude to writing will be that it is a chore and dangerous in the way it leaves him vulnerable to attack” (Dunsbee and Ford, 1980; p. 40).

Coupe (1986) analysed five teachers' comments in response to a composition by pupils from six first year high school classes. She argues that “many [corrections] are in fact linguistically and/or pedagogically ill-founded.” (Coupe, 1986; p. 122). She identified eleven categories of comment or correction. The five most common were: general evaluation; content; punctuation/sentence; spelling; and personal response. General evaluation comments made up 25% of the total comments. Coupe notes that “There is no attempt made to indicate what features of the texts in particular suggest creditable or below par performance.” (Coupe, 1986; p. 123). Furthermore, in response to the content of the stories, the teachers frequently passed judgment on the stories but “the writers are at a double disadvantage where the teacher not only holds certain expectations that they are required to meet, but neglects to let them know these” (Coupe, 1986, p. 126). Comments and corrections of this kind make it very

difficult for pupils to learn from their teacher's responses and may leave them reluctant to try again.

Children in Scottish schools receive teachers' comments and corrections on their stories on a daily basis. Teaching guidelines recommend that writers receive feedback on their stories during writing conferences (Ellis and Friel, 1998; Scottish Executive, 1999). The teacher's job is to diagnose areas where the pupil can improve her writing through observing the child, reading her stories and questioning her about them (Scottish Council for Research in Education, 1995). In this approach, both teacher and other pupils give constructive criticism and suggestions about a pupil's story. The feedback is oral, so pupils do not have to deal with interpreting cryptic comments or symbols indicating errors or omissions. Another advantage is that the writer hears from a number of different readers and so the teacher's expectations of a good story bear less weight. However, while this practice is carried out in the best schools, as judged by a HMI inspection,:

“almost half of the primary schools and a fifth of the secondary English departments had important weaknesses in assessment...Tasks were often set without pupils being clear about the purpose of the task or the qualities they were expected to achieve. Pupils received very little comment on their work, beyond a tick or “Good work”, even when possible improvements were obvious. Teacher's responses to pupil's writing often conveyed a message of low expectations.” (Scottish Executive, 1999, p. 18).

Pupils' progress in relation to the National Curriculum attainment targets is assessed at least once a year. National Curriculum assessments require the teacher to assign a letter grade, representing an attainment level based on national assessment guidelines (Scottish Office Education Department, 1991). The grades range from A to E. Level A “should be attainable in the course of P1-P3 by almost all pupils”; “Level E should be attainable by some pupils in P7/S1, but certainly by most in S2”. The children involved in the field study described in Chapter Six and Seven were in P7 and have ability levels ranging from level A to level E.

Table 3-1 summarises the assessment guidelines for personal and imaginative writing in the English Language Curriculum. These guidelines are for the content of the writing only; there are also guidelines for handwriting and presentation; spelling;

punctuation and structure; and knowledge about language. The programme of study columns summarise the content teachers are required to cover at each stage. Some of the content refers to writing techniques such as writing in third person. Other entries refer to activities such as drawing a picture and describing it in a sentence. The attainment targets columns reports verbatim the targets pupils should meet for each level (Scottish Office Education Department, 1991; pp. 18-19).

Attainment Level	Imaginative writing – programme of study	Imaginative writing – attainment targets	Personal writing – programme of study	Personal writing – attainment targets
A	Sequences: beginning, middle and end.	“Write a brief, imaginative story”	Express ideas through drawing, after discussion. Text may be a single sentence; teacher may be scribe	“Write briefly about a personal experience”
B	Introduction of plot, character, dialogues and settings.	“Write a brief imaginative story or poem or dialogue with discernible organization and using adequate vocabulary”	Sequences, perhaps through sequencing of drawing	“Write briefly and in an appropriate sequence about a personal experience, giving an indication of feelings, using adequate vocabulary”
C	Importance of character, setting the scene and action. Ask pupils to look at same event from different points of view.	“Write a brief imaginative story, poem or play, using appropriate organization and vocabulary.”	Different forms of personal narrative such as letters, or newspaper pieces. Sense of audience developed.	“Write about a personal experience for a specific purpose and audience, using appropriate organization and vocabulary.”

Attainment Level	Imaginative writing – programme of study	Imaginative writing – attainment targets	Personal writing – programme of study	Personal writing – attainment targets
D	Differences in effects created by first or third person, present and past tense narrative.	“Write imaginative pieces in various genres, using appropriate organization and vocabulary.”	How to depict emotions in accounts of personal experience; children explore “formats and effects” to discover styles appropriate to audience	“Write about personal experiences, expressing thought and feelings for a specific purpose and audience and using appropriate organization and vocabulary”
E	Filling out texture in stories with character development and setting. Opening, turning point resolutions.	“Write imaginative pieces in various genres, making use of some appropriate literary conventions”	Variety of forms: free verse, haiku, diary, personal letters, drama scripts	“Write about personal experiences in a variety of formats, demonstrating some capacity to reflect on experience and with some grasp of appropriate style”

Table 3-1: National curriculum writing assessment guidelines.

These guidelines cover characterization and setting in the story, but they are not detailed. They rely on the teacher’s appreciation of a good story to a large extent. This will vary from person to person. For example, “appropriate organisation” is a vague term to which different markers will attribute different meaning. The guidelines do not mention how to resolve differences of this type. In fact, the Scottish Executive report “Improving Writing 5-14” (Scottish Executive, 1999) states that:

“too few [schools] had yet taken steps to ensure accurate and reliable summative assessment in keeping with national guidelines. In the general

inspection programme, it was rare for HMI [Her Majesty's Inspectorate] to find evidence of cross-marking or discussion to standardize teachers' assessments." (Scottish Executive, 1999; p. 19).

The implications of this finding are serious. These assessment guidelines are used to permanently record children's attainment. Children may be put in language groups according to these assessments, which will have an impact on the way they are taught, and their perceptions of their own abilities. The performance of schools in terms of national curriculum attainment targets is published in school prospectuses to assist parents to make a choice of school for their children. This information may be misleading if standardisation between schools is questionable.

However, for current purposes, the issue is whether the national curriculum assessment guidelines can be used as an indicator of the level of characterization and setting in children's stories. The assessment criteria are not sufficiently detailed to pick up finely grained changes in stories between conditions. There is no subdivision of what constitutes good characterization or setting in the criteria. The grades also appear to refer to a folio of work for each child rather than single stories. For these reasons, the national curriculum assessment scale was not used in this study.

3.2.3 Story assessment schemes from previous research

This section describes a selection of writing analysis schemes which have been developed for previous research work. The schemes described here were designed to assess stories written by children in primary or secondary education. They mention characterization and setting in writing as well as stylistic and surface features. Wilkinson et al.'s (1980) scheme for assessing the affective maturity of children's stories, Price and Takala's (1986) scheme for assessing narrative writing and Cooper's analytic holistic scoring scale for personal narrative writing (1977) are described and contrasted with the analysis scheme requirements outlined in Section 3.2.1. These analysis schemes cover a broader range of writing features, in less detail than is required in this study.

3.2.3.1 Wilkinson's assessment of affective maturity in writing

Wilkinson (1983) describes an analysis scheme which measures maturity in poetic, expressive and transactional writing. Wilkinson maintains that as the writer develops, her writing will increase in maturity in four different areas – cognitive, stylistic, moral and affective.

The category of affective writing is closest to the requirements of the story analysis scheme for this project, and so only this category is discussed here. Affective maturity is exhibited in writing which shows awareness of self and others; awareness of the environment and its effects on people; and acceptance of the distinction between reality and imagination.

Wilkinson (1983) used the framework to evaluate a large body of writing produced by pupils in English schools. Analysis of four written pieces by children in three classes of 30 children each took place. The three classes were composed of seven, ten and thirteen years old pupils.

Each participant wrote, as part of their normal classroom activities, four pieces on subjects set by the researchers but presented by the class teacher. The subjects required the participants to: write an autobiographical account of the “happiest or saddest day of my life”; write out the rules of a game; discuss the questions “Would it work if children came to school when they liked, and could do what they liked there?”; and write a story based on one of three photographs. For each age group, the study identified common areas of style, cognition, morals and affect. In terms of the framework, the writing of the older children exhibited greater maturity in all the areas than the younger children.

The first category in the Wilkinson (1983) affective maturity scale is **self**. This refers to the writer's expression and evaluation of her emotions in writing. As the writer becomes more mature she will be able to express complex emotions and become aware of “motives behind apparent motives” (Wilkinson 1983; p. 73). The self category also applies to writing where the writer demonstrates that she is aware of her self image.

The next category in the affective maturity scale is **others**. This is a measure of the writer's use of empathy. It measures the extent to which the writer portrays other people as individuals by writing what they do and say, think and feel.

Another aspect of affective maturity is the writer's awareness of the **environment** and the effects it has on the writer, or on other people. Here "environment" refers to the physical environment (landscapes, architecture, furnishings and other descriptions of settings) and social environment (such as the social norms governing a situation, or the social hierarchy of participants in a situation).

A fourth aspect of affective maturity is a sense of audience (**addressee**). This category is also related to style of writing. It measures the extent to which the writer can take the perspective of the reader by supplying all the information the reader requires to make sense of the writing.

The final category of affective maturity is **reality**. This aims to measure the extent to which the writer appreciates the differences between the real world and imaginary worlds. Another aspect of this is how far the beliefs exhibited by the writer fit with external reality.

Wilkinson's scale records aspects of characterisation in the self and others categories. Setting is recorded in the environment category. Unfortunately, the guidelines for applying the scheme are vague and difficult to apply. Inter-rater reliability is not reported for the original project. The subdivisions of each category are not clearly defined, and for this reason consistency between stories and between raters is likely to be low. It is also biased towards personal narrative rather than imaginative writing; the self category particularly is concerned with the expression of the writer's own emotion rather than the emotions of an imaginary character. Lastly, raters apply these categories based on their impression of the story as a whole, rather than by differences in characterisation and setting across stories.

Wilkinson's scheme (Wilkinson, 1983; Wilkinson et al. , 1980) for assessing affective maturity is therefore not suitable for this field study. However, this scheme, and the results of Wilkinson's evaluation of the affective maturity of children at

various stages of development, were used to develop the assessment scheme described in Section 3.3.

3.2.3.2 Price and Takala's scheme for assessing narrative writing

Price and Takala (1988) report a narrative writing scoring guide which was developed during the International Study of Writing Composition (conducted by the International Association for the Evaluation of Educational Achievement). The scoring guide is applied to personal narratives written in response to a title such as "I made a hard decision"; "I met a new friend" or "I learned to know how the other person feels." The titles all encourage the writer to write about their own feelings and the feelings of other people. The scoring guide has seven categories: quality and scope of content; organisation and presentation of content; style and tone; lexical and grammatical features; spelling and orthographic conventions; handwriting and neatness; response of rater. The category which records the characterisation of the story is "quality and scope of content." One sub-category is "presentation of characters, events and feelings". This "refers to the development of characters, the disclosure of the relevant events, and the depth of portrayal of the feelings of the writer and, if appropriate, other characters." (Price and Takala, 1988; p.139). The rater assesses each category on a scale from 1 to 5 where 5 is applied to the most accomplished stories.

The sub-category for "presentation of characters, events and feelings" records characterisation in stories, but the guidelines are non-specific. One grade is assigned to account for both characterisation and "thematic appropriateness of what is said". Grades are applied to stories as a whole, rather than at fine grained phrase or sentence level. For these reasons, Price and Takala's scoring guide for narrative writing is not suitable for this study.

3.2.3.3 Cooper's analytic holistic scale for personal narrative writing

Cooper (1977) describes a holistic analytic scale for assessing the personal narrative of high school students. This scale was devised by four high school English teachers

both as a marking scale for teachers and a guide to help the pupils improve their own work. They studied the features of writing found in published professional writing and original student writing, as well as some papers on literary criticism and theory. The list of desirable writing features was then refined and developed into a scale. The teachers identified examples of high, medium and low achievement in each category from original student work. These pieces were used to train the raters and improve inter-rater reliability. Although the scheme was reasonably time consuming to develop, it is intended to be quick to apply (two minutes per story). The performance of each pupil is assessed by two raters on two sample stories. The raters assess the stories as a whole, rather than by counting the frequency of story features.

The categories for general qualities are: style or voice; central figure; background; sequence; and theme. Characterisation and setting features of the story are assessed in various categories. In the “style or voice category”, high attainment is recorded when “The author states what he/she really thinks and feels”. (Cooper, 1977; p.22). The “central figure” category refers to physical appearance and personality descriptions. At high attainment level, the central figure “is described in such detail that he/she is always “real” for you.” At middle achievement level, “The central character can be “seen” but is not as real as he/she could be.” At low achievement level, “The central character is not a living person; he/she is just a name on a page. You cannot see him/her or understand him/her.”. The “background” category records the setting of the story. The levels go from “The action occurs in a well-detailed place that you can almost see” to “The action occurs without any detailed setting.”

This personal narrative writing scale is not suitable for this study. Although the central figure and background categories record the characterisation and setting in a story, the scoring guide is not specific about how to categorise writing into high, medium or low achievement levels. It does not distinguish between the personality, moods and relationships of the characters. The scheme was designed to be a holistic scale where the raters mark the story as a whole rather than counting frequencies of categories. For these reasons, this scale was not used in this study. The next section describes the analysis scheme which was developed instead.

3.3 Writing assessment scheme

This section describes the story analysis scheme I developed to compare aspects of characterization and setting in stories written after using the virtual role-playing environment with stories written in normal classroom circumstances.

This scheme is intended for research rather than teaching; it is a fine grained method of analysing stories and is time consuming to apply (on average thirty minutes per story for the field study stories which have a mean length of 442 words). Each story is examined and coded by category on a phrase-by-phrase basis. The characterization and setting categories in the scheme are intended to capture the sorts of thing a reader looks for in a good story. While the national curriculum assessment guidelines require one grade to represent the teacher's overall impression of the story including characterisation and setting, this scheme breaks these impressions down into nine separate categories. This captures the specific techniques a pupil has used, and her strengths and weaknesses. For example, a story might be very strong on dialogue and characterisation in general, but ignore the setting of the story. Of course, the balance of characterisation and setting in stories is a matter of style to some extent; it varies in adult authors who are considered to be masters of their craft. There are many ways of writing a good story; stories which have different profiles across categories can be equally enjoyable. For this reason, there is *not* a correlation between national curriculum grades and the category frequencies in this scheme. Another reason for the lack of correlation is that the national curriculum grades take into account other features of writing, such as plot and sense of audience.

This scheme could be adapted into a holistic analytic scale (Cooper, 1977) by training markers to summarise the use of characterisation and setting techniques across the whole story rather than phrase by phrase. This adapted scheme would be of more use in a classroom situation because it would be quicker to apply.

I developed the scheme by studying the techniques used by published authors and learner writers across various stages of their development. Techniques used by expert authors are taken to be the end point of writing development. The techniques are common across most published authors – if you were to pick a random book off the

fiction section in a library, you would find many of the techniques in use. In the sections below, for each category, the techniques adult authors use are discussed and illustrated by examples.

For each category, there is also a discussion of the techniques which writers learn to use at different stages in their development. For the characterisation categories in particular, Wilkinson's (1983) work on analysing the affective maturity of children's writing at ages seven, nine and eleven is useful for sketching the development stages. It was also useful to study the writing jotters of three pupils throughout their primary school careers. The pupils were Lynne (my sister), Dominic (my partner) and Judy (myself). Studying the writing of friends and family has the advantage that it was possible to ask them about the circumstance of the writing and what they hoped to achieve, assuming it wasn't lost in the mists of time. Examples from children's writing are given to demonstrate that children are capable of using the techniques specified in the story analysis scheme. The sub categories for each category are summarised, with examples of the use of these techniques taken from the stories collected during the field study.

A full study of the development of writing techniques is outwith the scope of this study. However, an indication of the basic stages in developing these techniques is useful to ensure that the analysis scheme is sufficiently detailed to capture changes in writing across ability levels. The stages for each category are: absence of the category; **simple** statements which are classed in the category; **detailed** descriptions which are classed in that category and **figurative** language in descriptions. Note that some experts deliberately use simple language for effect; this is part of their writing style. However, given that teachers encourage children to describe in detail and use figurative language in their stories, in this study these categories measure the sophistication of the writing techniques. For the purposes of this work, the sophistication of the writing techniques and the maturity of the writing are considered to be the same. However, the use of these techniques is independent of the social maturity of the writer.

The analysis scheme was refined by applying it to selected stories written by Lynne, Dominic and Judy, published children's authors, and published stories for adults. The children's stories by adult authors were taken from a collection of "Thirteen Unpredictable Tales" by Paul Jennings (Jennings, 1997) and "Seven Strange and Ghostly Tales" by Brian Jacques (Jacques, 1999). The stories intended for adults were selected from the anthology Gordon and Hugh's "Best Short Stories of 1995"(1995). The scheme was further refined after a pilot run where three other researchers analysed a published story and a child's story using the prototype scheme. The scheme was adjusted again to take into account the features of personal experience stories written by a class of twenty two nine year old children. The resulting scheme is consistent with the characterisation and setting teaching exercises in Ellis and Friel (1995), although it was developed quite independently.

3.3.1 Characterisation

"Characters are essential to stories. Believable characters underpin the success of stories such as "The Lion, the Witch and the Wardrobe". They hook the reader's interest and emotions, making the most unbelievable, magical events become real and important... Without characters, stories become lists of events, devoid of human interest."

(Ellis and Friel, 1995; p. 24)

This section explains the techniques authors and learners use to portray characters in their stories. The characterisation categories of the story analysis scheme are listed, and hypotheses suggesting how the virtual role-playing environment will affect these aspects of characterisation are outlined.

The main characterisation categories are personality, moods, relationships, actions, appearance and speech. The personality or moods of a character, and her relationships with other people can be explicitly stated. These aspects of characterisation can also be implied through the way she speaks and acts and through her physical appearance.

Ellis and Friel (1995) note that children already know a lot about characterisation from their life experiences and the books they have read. However, teachers can help

them to become more observant about people and teach them techniques to portray them as characters in stories. They see characterisation as a way to help children add emotional colour to stories which otherwise would read as a report of events. They emphasise that teachers should help their pupils create characters before they even begin to write the story. This way, the character descriptions will be integrated with the plot rather than added as an afterthought. For example, story events may have an effect on the character and change his personality or habits for good.

Ellis and Friel's guidelines contain exercises to help pupils learn a large array of sophisticated characterisation techniques. The exercises are considered suitable for children at levels C-E of the curriculum, but the techniques they teach can be found in work by adult authors. Ellis and Friel have high expectations of their pupils, but their guidelines are structured in such a way that the pupils are led through the techniques a step at a time with ample teacher support.

3.3.2 Personality

3.3.2.1 Portrayal of personality in experts' writing

The writer of an engrossing book has mastered the art of getting the reader to empathise with the characters. Even the most terrible predicaments and mind boggling dilemmas will not convince the reader to continue unless she cares about what happens to the characters. The characters must be real enough to support the action in the story or the plot will seem weak. If the reader can empathise with a character, then she understands his motivations. If she understands him, she is more likely to care about his fate. There is a difference, of course, between empathy and sympathy. It is possible for the reader to have empathy for the villain even if she feels his actions are morally indefensible. As long as the reader understands his motivations and background, she will care about what happens to him.

Take the example of Darth Vader in Star Wars. The Star Wars series was inspired by research into universal traditions of stories and myths (see Murray, 1997 p. 186). Darth Vader is an interesting villain because he is not purely and simply evil. The audience knows that he was once corrupted into the dark side of the force, so he has

a potential for good. When he is dying, it matters to the audience. They care about his fate.

How can a writer portray a character convincingly? The character should have a *personality*: a set of traits and habits which distinguish him from the other characters in the story. Some writers advocate the approach of creating a c.v. for fictional characters in a story (Carr, 1991) to become familiar with the character's background. The author thinks about the character's likes and dislikes, her education, her job, her appearance, her relationships with other people and writes all these things down in capsule form. From this device, the author has a kind of Swiss army knife to tackle any situation the character might end up in. With such a general picture of the character's personality traits, it is easier to imagine how she would react to an incident to further the plot. It is worth pointing out that some writers do not agree with this approach. The playwright David Harrower, for example, maintains that characters need not have personalities outside the plot (Harrower, 1999). Their reactions to plot incidents are sufficient. The plot drives characterisation, in his view. This approach results in characters with more fractured personalities whose reactions are slightly different depending on the presence of other characters. This echoes real life to a certain extent; people certainly do act differently depending on context.

Once the author has decided what the personality of the character is to be, how can he get this across to the reader? The most obvious way is to simply state it. For example, this is a snippet of the story "Stupid Marco" by Jay Williams (Williams, 1991; p. 17):

"Although he was cheerful and good hearted and handsome, he was not bright enough to tell his right hand from his left."

The personality of the character can be described in a more elaborate fashion, such as in this example from "Nunc Dimittis" by Roald Dahl (Dahl, 1990):

"...I digress for the minute to tell you roughly the sort of person I am. Well let me see. Now that I come to think of it, I suppose I am, after all, a type; a rare one, mark you, but nevertheless a quite definite type - the wealthy, leisurely, middle-aged man of culture, adored (I choose the word carefully) by

his many friends for his charm, his money, his air of scholarship, his generosity and I sincerely hope for himself also...”

This level of description goes on for several paragraphs. Clearly Roald Dahl has a need to establish a character more complex than the prince in the Jay William’s story. An interesting thing about this passage is that it has two layers of characterisation. Below the layer of the statements about the narrator’s personality are some general impressions about him from what he tells the reader about himself and how he tells it. One gets the impression that he is arrogant, cynical and witty.

Novice writers are often encouraged in essays and books about creative writing (for example MacRorie, 1980) to *imply* the personality of a character rather than describing it. A reader can form an impression of a character’s personality from what she says and does, from her moods, from her appearance and how she acts when she is with other people. Readers are used to forming opinions of people from these cues. They do it all the time in real life. We may be told about someone before we meet them, but of course we have to filter out the informant’s biases from this information. We are certainly not privy to descriptions of a person’s nature from an objective omniscient source. For this reason, a story will have stronger characterisation if the writer portrays the characters consistently by their actions and words and moods as well as stating them directly.

A personality can be portrayed indirectly through the moods of the character, and by her relationship with other characters. In turn these dimensions can be shown through the way the character acts; her facial expression and general appearance; and the way she speaks. Personality can shine through from these last three dimensions even when they do not contribute to a character’s mood or relationships.

The next section discusses the ability of young writers to reflect the personality of characters.

3.3.2.2 Portrayal of personality in learners' writing

Wilkinson et al. (1980) assessed the writing of ninety pupils for affective maturity (see Section 3.2.3.1). One third of his subjects were seven years old, a third were ten years old and a third were thirteen years old. He noted several trends in these groups.

Seven year olds tended to place the burden more on the reader by implying emotion rather than expressing it and by leaving the reader to infer emotions from the situation. At this stage characters are one-dimensional, with no apparent personality. The writer may distance herself from the characters by referring to them only as “the boy” or “the bad man”. The relationships between the characters (Wilkinson’s **other** category) are not well presented. The existence of other people is recorded, but the other characters are not shown as separate people with personalities of their own. Speech and actions of characters are not usually recorded at this stage. Wilkinson does not specifically consider characters’ appearances in his scheme.

As an illustration of these points, consider this school diary entry written by Lynne when she was seven.

“Soon it will be Easter. I have one Easter egg with jelly babies my little sister got one to my gran gave us them My grandad is not very well”

(Lynne, 7)

The lack of emotion on the narrator's part is striking here. Lynne was probably pleased about her gift, and was possibly sorry for her grandad but this is not apparent from the writing. The other characters in this account, and consistently through the rest of the diary entries this year, are mentioned but never say anything or have emotions attributed to them. Their actions are often reported.

Wilkinson found that ten year olds begin to cater for the reader more by stating emotion, including words and thoughts for other characters, and describing the environment. At this stage young writers seem to have learnt to state emotions and perhaps personality directly, although in a simple way. They can also give the reader more information about the characters by including speech and actions, although

perhaps they cannot consciously manipulate this dimension. Another school diary entry written by Lynne illustrates this.

“Today my dad went out for his first run after the marathon. He ran five miles. He got up at 6.30 in the morning. He said he felt a lot better for it. My mum said ‘That he shouldn't bother to go running on his birthday’”

(Lynne, 10)

In this entry the parent characters have a bit more of their own personality. Lynne's Dad's attitude to running is mentioned, along with his actions of getting up early to go running. Her Mum's attitude towards these acts is shown through her words. Her words also give a hint about the relationship between the parents. Notice that Lynne does not comment on moods or personalities. She inadvertently implies them through words and actions.

Wilkinson found that thirteen year olds are more aware of their own and other people's emotions, and emotions may be intentionally left implicit by selective use of detail. This selection of detail for effect also occurs for the environment. Thirteen year olds are better able to interpret (rather than just describe) the real world and write imaginatively. They can still imply personality, moods and relationships through actions and words, but they can also describe and evaluate these things in a more insightful way. There is a possibility that there may be *too* much analysis of the characters at this stage, resulting in too much description without any plot action. This is something which a writer learns to filter out as she continues her writing career.

At the age of thirteen, Lynne was asked to write about an experience when she felt guilty. The following excerpt is from that story. The attitudes of the characters are stated and evaluated throughout the story.

“At that point I didn't bother to think what would happen to Alan if we left him to find his own way up the road. At 3.30pm the bell rang and my friend and I ran as fast as we could out of the gate and up the road. We were just feeling pleased with ourselves when we heard a shout behind us. We started running again as fast as we possibly could. The last we saw of Alan he was sauntering up the hill with his friends. We arrived at the music teacher's house breathless but triumphant.”

(Lynne, 13)

Table 3-2 lists the personality sub-categories in the story analysis scheme. The personality category is used to classify story segments where the personality of a character is explicitly stated. Personality implied through speech, action, appearance, moods or relationships are classified under other categories. **Personality, simple**; **personality, detailed** and **personality, figurative** indicate the sophistication with which the writer describes personality.

Personality subcategory	Description	Example
Personality, simple	Simple description of personality. Personality coded segments which are not detailed are simple.	And he was brave
Personality, detailed	Personality is described in detail. More than one adjective is used to describe the personality	He was very very kind
Personality, figurative	Figurative language is used to describe personality. Description of personality is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.	She was missing a screw

Table 3-2: Personality subcategories.

3.3.3 Moods

3.3.3.1 The use of moods in experts' writing

The moods and attitudes of the characters in a story are important for at least three reasons.

Firstly, a character who displays emotion in reaction to her struggles in a story is believable and interesting to a reader. These emotional reactions in a sense help to indirectly define a character's personality: does he fight or flee? is he a man or a mouse? A character who has consistent moods throughout a story can use the moods as a kind of trademark. Scrooge, to take an obvious example, is tight fisted and bad

tempered for most of “A Christmas Carol” (Dickens, 1999) - to the extent that his name is now synonymous with these traits in everyday language.

Another reason why the moods of a character are important is that they help to define the relationships between that character and the others. The emotional reaction of one character to another tells us a bit about both of their personalities but also about the complexities of how they feel about each other. In “Wuthering Heights”, by Emily Bronte (Bronte, 1850), one of the themes of the book is the contrast between Cathy's relationships with Heathcliff and Edward Linton. Cathy and Heathcliff seem to inspire each other to behave badly; Cathy is bad tempered, haughty and sulky with Heathcliff, while she is calmer and more light hearted around Edward.

A related point is that the moods of the characters in the story may advance the plot. Emotions motivate a character to act in a certain way, and these actions influence the way a story unfolds. To continue with the “Wuthering Heights” example, if Heathcliff didn't love Cathy so much that he was driven insane with jealousy, he would not have married Edward's sister. This development is important for the plot of the story because the offspring of this union is a main character in the latter part of the book.

The moods of a character can be stated directly by the author, or indicated indirectly through his actions, words and facial expressions. It is a matter of opinion whether young authors should aim to state and evaluate the emotions of their characters in a complex, explicit way, or whether they should strive to imply these things through the external behaviour of the character. The former technique is to be found in the great nineteenth century psychological novels; the latter has become more fashionable this century.

3.3.3.2 The use of moods in learners' writing

How well do young writers cope with portraying the emotions of the people in their stories?

Initially, they don't. Wilkinson et al. (1980) found that seven year old children do not indicate emotion about story events even if the events are compelling. It is not that

children don't experience emotions and attribute them to other people in real life; rather, the task of writing is so difficult that they fail to include emotion. Children at this stage may not have acquired a model of the reader, and consequently see no need to elaborate on the moods of people in the story. It is left to the reader to infer the emotions from the story events.

Two school diary entries written by Lynne (age eight) illustrate this.

“Thursday 22nd April

Yesterday my gran fell down the stairs and broke her wrists and got a bang on the head We went into hospital to see her she will not be able to do anything for a long while so my mum will go over some days

Monday 26th April

Today we went to picture box it had a story about a mermaid and one about a horse. On Saturday morning and Sunday afternoon and evening we went to my gran's She has got a black eye and a cut on her forehead She has two broken wrists she is very bruised. We did her shopping and went down to my uncles house he has emigrated and his house is for sale He says that we can take what we want.”

(Lynne, 8)

The fact that Lynne expresses no emotion about her Gran's accident is not explained by a lack of feeling. It is because she has not learnt that she needs to express feelings more directly in the written mode.

After children learn to include simple indications of mood in their stories, they can learn to write more insightful or evaluative comments about emotion. Wilkinson found that nine year old Jean wrote a very moving account exploring her and her family's feelings about the death of her grandad (Wilkinson et al., 1980).

It also appears that children can learn to imply the moods of their characters through facial expression, actions and speech. A story I wrote when I was ten, “The Outcast”, serves as an illustration of two of these features:

“Susan was mad. She couldn't play netball for toffee so she couldn't complain. All the same she and Eliza stomped away looking like two wet Sundays in February. They were ratty all morning and even Susan's worshippers began to get angry.”

(Judy, 10)

Table 3-3 lists the mood sub-categories in the story analysis scheme. The mood category is used to classify story segments where the mood of a character is explicitly stated. Moods implied through speech, action or appearance are classified under other categories. **Mood, personality** and **mood, relationships**, represent some of the skills used by expert and learner writers. **Mood, simple**; **mood, detailed** and **mood, figurative** indicate the sophistication with which the writer describes moods. Note, however, that some very effective writing about emotion may be very simple. As with all the categories, **simple** and **detailed** are applied to phrases in conjunction with codes from subcategories.

Mood subcategory	Description	Example
Mood, implausible	Mood is implausible for given circumstances. A gauge of the writer's ability to grasp how people feel in particular situations. More likely to be found in stories by younger children.	On the way back we were singing (The characters have just witnessed the bloody murder of a classmate)
Mood, personality	Mood implies personality. A character's emotional reaction to an event can give a clue to their personality	He was the hero. He was never scared, depressed, miserable but he was always noticeable
Mood, relationships	Mood implies relationships between characters. A character's emotional reaction to another's situation, or feelings evoked by an encounter with the character come under this code	I was so glad to see him
Mood, simple	Description of mood or attitude is simple. Any mood coded segment which is not detailed is simple	I was worried before

Mood, detailed	Description of mood is detailed. A reason or explanation or elaboration is given for the mood	I was surprised because I thought Fred was a human being
Mood, figurative	Figurative language used to describe mood. Description of mood is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.	I was so over the moon

Table 3-3: Mood sub-categories.

3.3.4 Relationships

3.3.4.1 Portrayal of relationships in experts' writing

If Romeo had never met Juliet, then Paris, Tybalt, Mercutio and all the other Capulets and Montagues might have lived longer and happier lives. The relationship between Romeo and Juliet fuels the plot of the play. It motivates Juliet to disobey her parents and take a powerful poison, and Romeo to risk death by coming back to Verona after Juliet is buried.

Once an important relationship has been established to the reader, then the writer can show how it conspires with other circumstances in the story to forward the plot. Usually love relationships involve some kind of an obstacle for the lovers – a stern father, a mad wife, the bubonic plague, lack of money, stubborn pride, or war. These obstacles can be internal, perhaps a psychological trait of one of the lovers, or external, in the form of another contradictory relationship or an impersonal powerful force. Whatever the form, these obstacles are the essence of plot. An audience is interested in conflict, in troubled relationships and in fast moving plots.

It is not only romantic relationships which can be central to the plot. Jealousy between siblings, political rivalries, competition between highly paid professionals and parent and child disagreements all have good potential for the basis of a gripping plot.

Relationships also have a powerful motivating force on the characters involved. They can inspire a character to alter her personality, her attitudes and very often her mood. In Roald Dahl's classic short story "Lamb to the Slaughter" (Dahl, 1990), the placid heroine, Mary, is driven to a dreadful act of murder because of her relationship with her husband. At the start of the story, Mary looks forward to the blissful time of day when her husband comes home so that she can "luxuriate in the presence" of him. In the middle of the story Mary is horrified and dazed when she learns that he is having an affair so she, without planning it, kills him with a blow to the head with a frozen leg of lamb. By the end of the story she is laughing silently while the police eat the murder weapon. Her disastrous relationship has changed the reader's perception of her personality radically.

Readers can learn much of a character's personality from her interactions with other people. In "The Lord of the Rings" (Tolkien, 1954), Frodo is rescued from the grip of the Orcs of Mordor by his loving and faithful servant, Sam. Sam was not really the hero type, but he was determined to save his beloved friend even by risking his own life. This situation adds an extra dimension to Sam's character.

Relationships between characters can be stated explicitly, or implied through the way the characters speak and act when they are with each other, or through their facial expressions. Techniques for implying relationships will be discussed in later sections.

3.3.4.2 Portrayal of relationships in learners' writing

Initially, children's stories do not set out to illustrate relationships between characters. Wilkinson et al., (1980) noted that in early autobiographical writing, characters other than the narrator are one-dimensional and do not have distinct personalities. The reader is left to guess the relationship between the narrator and the person. Fictional narratives at this stage tend only to give the silhouette of a character and are often distanced from the reader by labels such as "the boy" or "the mummy".

At later stages, young writers can show the relationship between characters by including speech and actions. In autobiographical pieces, the reader can often read

between the lines and speculate about the relationships between characters based on what has been reported about their conversations and gestures. Fiction pieces are often fantasy based, and according to Wilkinson et al. (1980) have themes of violence, war, kidnapping, burglaries and other unsavoury events. The relationships between the heroes and the adults in the story are remote and can be hostile in words and gestures.

The relationships in young children's writing are simple and brittle – they are not as complex as relationships between real people. For example, consider this excerpt from a fairy story I wrote when I was eleven.

“Her father was very unhappy and neglected the girl badly. One day he brought home a beautiful woman and said to his daughter ‘Eliza this is your stepmother’. ‘What?’ screamed the woman, ‘You mean you have a child? Send her away to the forest and let her starve!’ As much as Eliza's father pleaded (for grief had made him neglect her) the stepmother made Eliza go.”

(Judy, 10)

Although an attempt has been made to explain why the father neglected his daughter, it is not explained in very much detail. It is not clear why the stepmother should object to children so much and it is implausible that she would send her stepdaughter off to starve. Having said that, in the genre of fairytales, these things happen.

As writers mature, they learn how to depict relationships between characters in a more complex and plausible way. They might do this by explicitly describing the complications of the relationship, or by more skilfully showing it through the words, actions and facial expressions of the characters. For example in the next excerpt from a story written when I was eleven, I describe the relationship between the narrator and the other people in her class more plausibly, and in more depth than in the previous example.

“I hate Susan (but her followers are O.K.) and I've never really bothered about being ignored. Mind you I'm thick skinned (also thick-headed says Susan)

But Jane had a rotten time. She was called ‘Brace Face’ ‘Plain Jane’ ‘Bean Pole’ and worse names than that which I am not going to write down.

I made friends with her because I know what its like to be called names.”

(Judy, 11)

Table 3-4 lists the relationships sub-categories in the story analysis scheme. The relationships category is used to classify story segments where the relationship of a character is explicitly stated. Relationships implied through speech, action, appearance or moods are classified under other categories. **relationships, simple**; **relationships, detailed**; and **relationships, figurative** indicate the sophistication with which the writer describes the relationships.

Relationships subcategory	Description	Example
Relationships, personality	Relationship indicates personality. The way a character's attitude to another changes, when story events change circumstances give an indication of the character's personality.	They all done a little prayer for him except for Miss Robertson. She was trying to figure out what to say to his parents
Relationships, simple	The relationship is described simply. Factual relationships, including statement of family relationships, or bald statements of attitude which do not give explanation	Jenny and Daniel were brother and sister
Relationships, detailed	The relationship is described in detail. An elaboration, explanation, or reason is given for the character's feelings or attitude towards another.	I wasn't that worried about Jenny because she was with Fred

Relationships subcategory	Description	Example
Relationships, figurative	Figurative language is used to describe the relationship. Description of relationship is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.	Every time he passed her she always went ga, ga, over him.

Table 3-4: Relationship sub-categories.

3.3.5 Action

3.3.5.1 The use of action in experts' writing

Actions and gestures play a significant role in communication, and are therefore an important feature of stories. In every day life people are used to interpreting, recognising and evaluating gestures and actions. Writers describe the actions of a character to take advantage of readers' ability to read meaning into them and make judgements from them.

One of the main uses of actions in stories is to advance the plot. The reader knows that the film star put her diamond necklace in the top drawer of her dressing table as she got undressed. When a burglar stealthily creeps into her bedroom the reader wonders whether he will find it or not. Or, a dashing knight throws his gauntlet on the ground in front of his arch rival. Will they fight to the death?

However, actions can also portray a lot about a character. Consider how much information about people's personalities can be read from their gestures. When communicating, people watch facial expressions, hand movements, inclinations of the head, and many other such cues for insight into other people's states of mind. While much of the sending and receiving of such messages is unconscious, there are some classic sets of gestures to which most people attribute consistent meaning. For example, someone who folds their arms across their chest is generally recognised to

be either physically cold or defensive. Outstretched hands with open palms indicates openness and honesty across many cultures.

The writer may draw on this knowledge to use gestures and actions to illustrate the mood of a character. In the following excerpt from Niall Williams's "Four Letters of Love" (Williams, 1998), the writer conveys the state of mind of his character by showing her actions. This technique is an example of the "show, don't tell" maxim as described in manuals on becoming a writer (see for example, Dickson et al. (1991)).

"Even as the words were printing themselves forever across the yellowed pages of her mind, Margaret Gore fed the letter into the fire. She scolded herself silently for the tears that kept coming into her eyes and chewed on her lower lip until it was as raw as meat."

When a character habitually gestures in the same way, it can give the reader insight into his personality. A man who chews his nails to the quick might well be rather nervous. Such habits are also trademarks of the character and can be used to make a character consistent and more memorable. Sherlock Holmes is well known for smoking a pipe when he is ruminating. In fact, the measure he uses for the difficulty of the problem is how many pipes he will smoke while solving it.

An action can also be a reaction. Relationships between characters can be portrayed by showing one character's reaction to another. If a character who is normally very placid, flushes and drops a plate she was carrying when a man walks in, the reader would be alerted that the character has strong feelings about the man, and is not expecting to see him. Suppose a couple in a story fight like cat and dog for pages of dialogue but still hold each other's hands and sit next to each other on the sofa while doing so. The contradiction between dialogue and actions would indicate that the argument wasn't very serious and did not threaten their relationship.

In Ian Rankin's book "Let it Bleed" (Rankin, 1998), Inspector Rebus has a somewhat strained relationship with his ex-lover's cat, his ex-lover and his daughter. In this excerpt the cat speaks for them all.

"He followed his daughter down the hall into the living room. Lucky the cat took one look at Rebus, seemed to remember him and stalked off into the

conservatory. Rebus heard the catflap rattle shut. Now it was only two against one; the odds were improving in Rebus's favour.”

In summary, actions and gestures in a story can be used to advance the plot, to portray moods and personalities of characters and the relationships between characters.

3.3.5.2 The use of action in learners' writing

The previous section considered how expert writers use action in stories. This section considers how learners include actions in their writing, and how this particular skill might develop over time.

Ellis and Friel's teaching guidelines (1995) contain exercises on writing about character's actions. These include revealing the character's true nature through his deed, and noting how his deeds may differ from his actions; portraying the mood of a character through body language; and showing the contrast between the actions of a character and his inner feelings. These exercises are suitable for pupils between levels C and E of the curriculum (roughly between ten and thirteen years).

One problem less developed writers encounter is choosing what to include in the story. This is a problem of reader awareness. The next example is taken from a nine year old's personal experience story about a trip to Nova Scotia. At the start of the story Austin establishes that the whole family are very excited about going to Nova Scotia on holiday because although they have talked about going there for a long time, none of them have been before. As the story goes on Austin limits himself to mentioning incident after incident with no description of them, and also describing action after action whether the actions are relevant or not. He has not yet discovered how to filter out details which are uninteresting to the reader or to concentrate on significant incidents and actions.

“Then my whole family went to a restrunt for a wile. Me my Dad and Jackson went back to the Motel. Then my mom came back. That next day Mom, Dad Jackson and I got on a furry went to Nova Scho! When we got there we went to a bank and got money. Then went to a campsite and set up. I tool a walk to explore the site. My dad got fire wood and I bult a fire. The next morning we

got up and made breakfast. That day we went to a fishrey museum stayed therefor about Four Hours.”

(Austin, 9)

In contrast, one of Austin's classmates, writing about her first trip away from home without her parents, controls which actions she reports.

“Then we went to bed. Rachel likes to have the light on when she sleeps and I like the light off. Rachel still turned it on when I said ‘I like to have the light off when I sleep’ It was bothering me the whole night. The next morning we got donuts like every other morning. Another day we went golfing. One day we went to the light house.”

Like Austin and many others, the writer reports going to bed. However it is not merely a statement of a mundane fact. She includes a description of the contrast between Rachel's habits and hers, and the words she speaks and the non-reaction tells us a little bit about her relationship with her friend. She included this section because it might be interesting to a reader. Similarly, she doesn't list all holiday incidents, she picks some varied examples to give a picture of how interesting her holiday was. She is also capable of using actions to highlight her moods:

“When we got to Rachel's house it was very hard to say good-bye to my parents. I kept kissing my parents but finally I had to say good-bye so I did.”

Abe, another classmate, shows even greater selectivity in describing actions. He is writing about a single incident which takes place over a short period of time (the time he got stitches) so he does not have to filter out less interesting incidents as he writes. His actions are described to advance the plot; there are no unnecessary details at all.

“I was whittling a stick outside with my new knife. Then suddenly my left thumb started to sting and throb. I looked down at it and there was blood gushing out of my thumb! I ran inside.”

(Abe, 9)

As writers develop their skills, they will learn to use actions to indicate personality and plot. In the following gruesome excerpt from Dominic's story “Thar she blows” (written when he was eleven), the narrator is shown to be a bit lazy when he wastes time instead of climbing the rigging. Later in the story, he “relaxes and remains

dormant” after waking up with the flesh on his leg torn from a squid attack. A laid back character indeed! In the next excerpt, the actions involved in the unfortunate Hill's demise are essential to suspense and the plot.

“Hill the lookout was one of the less honest crew members and had been ‘celebrating’ for the last twelve days so he was pretty woozy. I was leaning against the main mast ‘trying’ to splice a rope when the Skipper approached me ‘Se mou! you half French freak!’ ‘Skipper?’ ‘Supposed to be up there aren’t you Se mou’ ‘Yes Skipper’ I replied, and began to climb up the rigging. The Skipper went of to find someone else to yell at.

At last I reached the top of the mast. ‘Hill!’ He was leaning over the edge of the crows nest. At the sudden noise he jerked and to my horror lost balance and fell. He plummeted down and down and a nerve rending screech split the air. Hill was caught on the sharp edge of the funnel. His legs hanging outside while his torso head and arms were scalded horrifically. It must of been an agonizing death.”

(Dominic, 11)

There seems to be a link between reader awareness and the way actions are used in a story. In the early stages, when young writers have not yet learnt to cater for a reader, they may include irrelevant or uninteresting lists of actions. The actions are included to create a faithful account of the story incident rather than to give the reader interesting snippets about a character’s personality, mood or the plot of the story. As young writers read more, become more familiar with conventions of fiction, and as they become better at imagining a reader for their stories, they include fewer actions in the story. They learn to make every action count for the plot, or character. As an example of this, consider this excerpt from “A Narrow Shave” which I wrote when I was eleven in response to a short story in a Ginn reading book. Here the actions betray the true feelings of the characters.

“Dirk however was completely at ease. Or was he? His fingers played nervously at the reins. The leading officer said, ‘halt!’ and followed up his command with a spate of Dutch. Dirk answered confidently - apparently unconcerned. Although the men knew no Dutch it was obvious that the soldiers are asking Dirk what was under the sack. The questions continued the officers getting more and more suspicious. At last one man sprang forward and lifted the tarpaulin. He stepped back and flicked the sack back. ‘Nothing there!’ He said. The officer gave the command and the troop turned. As they went Dirk

caught a tiny smile playing around the lips of the man who had looked. He winked, the soldiers were safe.”

(Judy, 11)

As writers begin to include emotion in their stories, they will naturally start including actions associated with emotion (hugs, kisses, punches) particularly if they are reporting what happened in a real incident. This will help to show the moods of the characters and the relationships between them. Wilkinson et al.(1980) suggests that ten year old children are likely to include emotion in their stories.

Table 3-5 lists the action sub-categories in the story analysis scheme. The sub-categories of **action, mood**; **action, personality**; **action, relationships**; and **action, plot** are taken from the above discussion of the action descriptions in expert and learner’s writing. These sub-categories represent a range of techniques related to describing action in a story. **Action, simple**; **action, detailed**; and **action, figurative** are intended to capture the level of sophistication of the action techniques. The examples are taken from the stories collected during the field study described in Chapters Six and Seven.

Action sub-category	Description	Example
Action, mood	Action implies mood of character. Actions such as running away from something scary, hitting someone, crying, and so on, indicate the mood of a character without necessarily stating it explicitly.	I ran in a blind panic towards the big boat with deep holes in it
Action, personality	Action implies personality of character. Some writers establish personality traits through habitual actions.	Craig was trying to protect us (Craig is the class hero)
Action, plot	Action contributes to plot; this action will affect the outcome of the story	Very bravely, Jenny killed her
Action, relationships	Action implies relationships between characters. Any action or gesture which conveys the attitude of one character to another should use this code.	Daniel followed me

Action sub-category	Description	Example
Action, simple	Simple description of action. Any action coded text which is not detailed is simple	Daniel threw the item
Action, detailed	If the way the action is carried out, or what is used to carry it out is mentioned, then it is detailed	So I used an orb to kill her
Action, figurative	Action is figurative rather than literal. This code includes simile, metaphor and exaggeration where it has been used for effect.	He jumped out of his shoes in misbelief

Table 3-5: Action sub-categories.

Appearance

3.3.5.3 The use of appearance in experts' writing

Readers like to be able to picture a character, just as people often enjoy receiving a photograph of a pen friend they have never met. In real life people have a (frequently unfair) habit of judging people based on appearance. An author can take advantage of this by feeding readers facts about a character's appearance on the assumption that they will judge the character based on that information. As an example, consider this faintly malicious description from the narrator in "To Kill A Mocking Bird" by Harper Lee (Lee, 1993):

"Miss Caroline was no more than twenty one. She had bright auburn hair, pink cheeks, and wore crimson fingernail polish. She also wore high heeled pumps and a red-and-white-striped dress. She looked and smelled like peppermint drops"

This description sets the reader up to expect Miss Caroline to be a girly, sentimental teacher; an impression which is confirmed a couple of paragraphs later when she reads a saccharine story which makes the classful of down-to-earth country children "wriggle like a bucketful of catawba worms". Harper Lee paints a picture of Miss Caroline successfully by selectively describing her appearance, and telling of her (inappropriate) reactions to a situation. This is undoubtedly more effective than

simply saying “I thought Miss Caroline looked silly and overdressed compared to us children and she told a story which we thought was awful.”.

Another interesting point to make about the description of Miss Caroline’s appearance is that it also tells the reader quite a bit about the personality of Scout (the narrator). There is a suggestion that she is not someone who is impressed by carefully turned out appearance. In general, when writing first person narratives, the writer can show the narrator’s biases and attitudes by the details he selects to describe other people.

A character's appearance can be used to further the plot of the story. For example, in “The Princess Bride” (Golding, 1975), the author is at great pains to establish that Buttercup, the heroine, is the most beautiful woman in the world. Once this is established, it is understood why the evil Prince Humperdink wants to ensnare her, even though she is engaged to the dashing Wesley.

A particularly important part of a character's appearance is his facial expressions. The writer can indicate the mood of a character or relationships between characters by describing their faces. Consider this example from “The God of Small Things” by Arundhati Roy (Roy, 1998):

“...Chacko said ‘Now let me introduce everybody.’ Then, more for the benefit of onlookers and eavesdroppers, because Margaret Kochamma needed no introduction really, ‘My wife, Margaret.’

Margaret Kochamma smiled and wagged her rose at him. *Ex-wife Chacko!* Her lips formed the words but her voice never spoke them.”

A combination of speech and facial expressions can show the reader the distinction between the way the character feels she ought to behave and what she actually feels. In the example above, Margaret is torn between politeness towards Chacko and his family and making sure that Chacko has no illusions about the state of their relationship.

To summarise the preceding discussion, the appearance of a character can be used to suggest her personality, motivate relationships between characters, and forward the

plot. Naturally, it takes some skill for a writer to do this effectively. Various stages of development on the way to such skilled use are suggested below.

3.3.5.4 The use of appearance in learners' writing

Ellis and Friel's teaching guidelines for imaginative writing (1995) contain some exercises to help pupils write about characters' appearances. The exercises include writing detailed descriptions of people the pupils know well, paying attention to their eyes and facial expressions; the study of stereotyped appearances of characters in fairy tales and how the author can surprise the reader by breaking these stereotypes; and appreciation of the notion that characters' appearances do not always indicate their personalities. These exercises are related to the close reading of extracts from authors' stories, art work and detailed observations of familiar people. The idea that a character's appearance may contradict her personality is important for the virtual role-play exercise because the game characters' appearances are deliberately misleading

Children very often begin writing in the expressive mode; writing accounts of their school holidays, or what happened at the pantomime, or the "scariest day of their lives". When asked to write about an everyday event, the writer is less likely to describe the characters in it because they are familiar. Often young writers do not realise that the reader may not be familiar with the characters in the same way that the writer is. Also, given that the reader of children's stories is often only the teacher, and that the teacher often knows parents and family from parents' evenings, the writer may be justified in not including descriptions. Furthermore, by illustrating a story, the writer is describing characters pictorially and there is no need for duplicating this in text.

However, as the writer reads more and becomes acquainted with conventions of fiction, she will begin to notice that authors often describe the appearance of the characters. She might include short descriptions of characters in her own stories, but is unlikely to have mastered subtle use of it. At this stage, the descriptions are there purely to cater for the reader, or to stick to story conventions and sometimes are not

integrated into the story as a whole. A couple of examples from personal experience accounts written by nine year olds illustrate this.

“One morning I was in my room waking up when my dad (who has brown eyes and black hair) came running in and said ‘Hey Dave’ I said ‘Yes, Dad?’ He asked ‘Do you want to have your birth mark taken off?’”

(Dave, 9)

There are no further descriptions of appearance in the story and Dave's dad does not figure in the story beyond that conversation. The fact that his dad has black hair is irrelevant and detracts from the flow of the story. But it is a brave attempt. In a similar vein, Molly describes her swimming coach in passing:

“‘I can’t do it!’ I told my coach. She was in college. She had wavy brown hair down to her shoulders. She had a green tie-die bathing suit. ‘You have to ‘ she said.’”

(Molly, 9)

Stories written by older children may be painfully concerned with appearances, reflecting the preoccupations of adolescence. One of the main reading series used in the UK, Ginn, included stories about people who were outcasts from their society usually because they looked different from their peers. Follow on exercises from this type of story require pupils to write stories with the same theme. This task is likely to produce stories in which the appearance of the character is described to motivate the plot.

For example, the following extract is from a story I wrote when I was 11, in response to such a task.

“Try to imagine someone who’s nearly six foot tall and as skinny as a bean pole and got a brace as well. Got the picture? Right then you know Jane! She came to school, oh about a year ago. As you can imagine she doesn’t exactly look like Miss World so people tended to tease her.”

(Judy, 11)

In a similar story, written the previous year, I was able to describe the facial expression of a character to indicate her pleasant personality:

“There was a silence. Then to break it I said ‘I’m Charlie, this is Moira, Sal, Carrie and Kate.’ ‘Hello’ said Heather again and smiled a beautiful smile which lit up her face.”

(Judy, 10)

Children learn to manipulate descriptions of a character's appearance to indicate personality or mood or as part of a plot. On the journey to attaining this level of skill, however, a young writer may go through stages of failing to include any detail of appearances at all, and including too many details or irrelevant details. This latter stage represents progress and writers at this stage should be given credit for it.

Table 3-6 lists the appearance sub-categories in the story analysis scheme. The sub-categories of **appearance, facial expression**; **appearance, mood**; **appearance, personality**; and **appearance, plot** are taken from the above discussion of the function of appearance descriptions in expert and learner’s writing. These sub-categories represent a range of techniques related to describing characters’ appearances. **Appearance, simple**; **appearance, detailed**; and **appearance, figurative** are intended to capture the level of sophistication of the appearance techniques.

Appearance subcategory	Description	Example
Appearance, facial expression	Description of facial expression, or change in colour etc.	The minute Daniel said that, Jenny’s face went white
Appearance, mood	Appearance implies character's mood. Facial expressions such as frowning or smiling indicate a character’s emotion.	Then Fred’s face looked frightened
Appearance, personality	Appearance implies character's personality.	Her eyes are a dark brown with two pupils, dark and

	Habitual facial expressions, general cleanliness, vanity are some examples of personality attributes which can be inferred from appearance descriptions.	furious ¹
Appearance, plot	Appearance contributes to plot. If the appearance of a character motivates other characters into a course of action which changes the plot, or if disguises are used, this code should be used	She wore glasses (This detail is important because the glasses are a kind of disguise)
Appearance, relationships	Appearance implies relationship between characters. Facial expressions can denote how story characters feel about each other, smiles, frowns, winks directed at another character, or facial expressions or postures which react to another's predicament all count.	The minute Daniel said that Jenny's face went white (Jenny is worried about Daniel because she knows he has encountered the witch)
Appearance, simple	Simple description of appearance. Any appearance segment which is not detailed is simple.	He was all green
Appearance, detailed	Detailed description of appearance. If the phrase has more than one adjective then it is detailed. If a facial expression has an adjective or adverb describing it, then it is	Her jet black hair was in bunches with pink ribbons

¹ This example is counted as denoting personality rather than mood because the context implies that is a general state of affairs rather than a specific instance.

	detailed.	
Appearance, figurative	Description of appearance is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative	His athletic body made him look as if he could run like a cheetah

Table 3-6: Appearance sub-categories

3.3.6 Speech

“What is the use of a book”, thought Alice, “without pictures or conversations?”

Alice’s Adventures in Wonderland by Lewis Carroll (1865); p. 1.

3.3.6.1 The use of speech in experts’ writing

Alice was right. If characters in a story are to live and breathe, then the writer must learn to write good dialogue. As Carr (1991) puts it:

“When I’m reading a book so involving that I still turn the pages when the print is blurring, I find myself scanning long narrative paragraphs, searching for quotation marks. I don’t want to miss a word in quotes; I want to know what the *characters* are saying to each other. *They* are the story. And they should help tell their own stories” (Carr, 1991; p. 79).

Carr (1991) takes the view that the ratio of gesture to dialogue in fiction should be different from real life. While much of real life communication is by actions, Carr states that too much description of action in stories is weighty and strains the story. He prefers a good deal of dialogue. So although action is important, a story should contain more conversations between characters. Naturally, this rule of thumb does not work for all stories. Stories in which there is only one character, and certain stories written in the first person work well with limited dialogue.

Novels by Dick Francis (e.g. Francis, 2000) often have a strong silent hero, part of whose attraction lies in the difference between his thoughts and words. The novels

are written in the first person, so the reader is aware of the thoughts and feelings on the narrator; when he speaks, however, he usually manfully suppresses his pain and suffering, flippantly dismissing them. On the other hand his actions, limping along with a broken ankle or riding a horse when he has concussion are effective at making the reader wince, because they can imagine how much it would hurt.

In the same essay, Carr (1991) suggests three rules for effective dialogue. The first of these is that dialogue should help to build up a picture in the reader's mind of a character's emotions and personality. The second is that dialogue must propel the plot, and the third is that dialogue must individualise characters. Each of these rules is discussed below.

The way a character speaks can indicate a lot about their personality and background. The accent and vocabulary usage of a character can plant suggestions in the mind of the reader about the region the character comes from, his social class and his education. D.H Lawrence was particularly fond of this technique. Compare, for example, the way Lady Chatterly's lover speaks with the way Lady Chatterly speaks (Lawrence, 1995). She is of a high social standing, and reasonably well educated. Her accent is not particularly strong. He has a broad Yorkshire accent, and a smaller vocabulary with parochial entries, features which suggest he has had little or no education.

Emotions can be indicated by the *way* a character speaks words, or by the words themselves. If the character is meant to be shy about her feelings for someone, for example, this should be reflected in her dialogue with him. Suppose she has decided to ask him out. Her sentences could be abandoned and restarted several times. Her words could be vague and hesitant: "kind of", "maybe", "sometime would you", "only if you want to". She might speak in a quieter tone of voice than normal, or mumble. In general, a character's lines should express emotion in a stylised version of a life like manner. The manner of speaking may be more exaggerated or dramatic than it would be in real life, but to be believable, it should be based on what people do in real life. Notice that when mixed with the dialogue, actions can strengthen the

character's emotion. In the example above, our reticent heroine's embarrassment could be highlighted by her blushing, fidgeting and refusing to meet the man's eyes.

Dialogue must also advance the plot. One of the common mistakes Gary Provost (1991) identifies in using dialogue in short stories is including banal everyday conversation. Conversations should inform the reader of something she did not know, otherwise the conversation will be tedious. New developments should either be introduced descriptively or in dialogue. It is not necessary to do both. Banal exchanges, such as introductions or greetings, could be summarised to "After the introductions were over with, Sue got talking to Mary" or "Mary and Sue met in the street and exchanged greetings". On the other hand, Provost and Carr both stress that new plot points can be developed in dialogue. Juicy pieces of gossip can be dropped onto the reader's lap, via a conversation between two characters.

A writer must be careful, warns Provost, when revealing plot information in the dialogue. If the writer tries to tell all the plot through dialogue it will appear heavy handed. He gives the following example to illustrate this.

"You and I stole ten thousand dollars, Sam. We embezzled it from the Valentine Corporation, and when Jervis inspects the books from June fifth he's going to know it. Your brother Warren is a lawyer and he's married to Valentine's sister. I say we tell him' Tony said. ..."

The problem with that excerpt is that it does not seem likely that Tony would tell Sam that his brother is a lawyer, or who he is married to. One would expect his partner to know that kind of thing without being told. This illustrates a more general point; writers should avoid dialogues where characters tell each other things they should already know.

The third rule is that dialogue should individualise character. In everyday life, people speak in different ways, and everyone has habits of speech such as the words they use, or favourite turns of phrase; some people are frustratingly ponderous while others are incoherently rapid speakers. Characters in a story should have these trademarks too. Carr mentions that if the lines of two characters were isolated from a story and presented to a reader, the reader should recognise the speech patterns and

correctly identify which character spoke the line. Griffiths (1982; pp. 80-81) identifies such patterns in Shakespeare characters' speech. Hamlet often repeats words two or three times as in "...heartily; Yes faith, heartily"; "Words, words, words"; "Very like, very like"; "Come, come, deal justly with me"; "Come, come, nay, speak"; "except my life, except my life...". Rosalind has a habit of starting sentences with a negative or affirmative: "Nay, you better speak first"; "No, faith, die by attorney"; "No, no, Orlando..."; "Ay and twenty such"; "Yes, faith, I will"; "Ay, go your ways"; "Nay you might"; "Ay but when?".

A related point is that dialogue should illustrate relationships between characters. A character may adopt different habits of speech depending on who he is speaking to. This happens frequently in real life. It is often possible for example, to detect who someone is talking to on the phone from their tone of voice and the kinds of things they say. Differentiating the style of dialogue by relationships also helps to show different facets of a character. For example, from conversations between Rhett Butler and Scarlet (Mitchell, 1996), we see Rhett as a suave, sarcastic person, and we might imagine he doesn't really care for Scarlet. However, when we read a conversation between Rhett and Melanie, he is far more polite and gentlemanly, and he admits to Melanie that he really does love Scarlet.

To summarise, writers can use dialogue to: illustrate a character's mood or personality and background; show relationships between characters; or to distinguish between characters and to advance the plot. In the following section the use of dialogue within stories written by immature writers is discussed.

3.3.6.2 The use of speech in learners' writing

Ellis and Friel's teaching guidelines suggest some exercises for helping children master dialogue techniques. These include noting how people's choice of words is influenced by their circumstances; how the words spoken and the way they are spoken can show a character's mood; how different speech mannerisms or accents can reveal personality; and the difference between a character's inner speech and what he says aloud.

Personal experience writing requires the writer to recall incidents from the past. In doing so they will remember conversations between people and incorporate snippets of them into their stories. It may be significant that in many of the personal experience stories written by a class of nine year olds, direct speech was used to record the words of parents or other adults. Many of the words spoken by parental characters in stories do sound like parents. The way they speak to their children is characteristic of a parent/child relationship - they make decisions, give commands, dole out sympathy and speak in a slightly more formal voice than is used in the rest of the narrative. Frequently a parental voice at the start sets the scene for the rest of the story - a parent deciding to go on holiday, or that his son needs his birth mark removed, or that his son can't get a pet are some examples. Oddly, after this initial plot setting dialogue, there is often no more dialogue in the story.

In some stories the reported dialogue gives of a flavour of the relationships between the other characters in the story. In her story about how she gets a dog, Katie reports her mother saying "If your dad loses 15 pounds by March 22 we can get a dog". This has rich undertones of family relationships which are confirmed by a later sentence "We made my dad work out every night and eat special foods". It is unlikely that Katie is *intending* to characterise these relationships; the reader can infer them from the dialogue alone.

Some of the writers were able to show emotion through speech. When Molly wrote about her swimming race she included this dialogue:

"Later my coach Lorie came up to me and said 'Almost time for your race!' 'NO!' I screamed 'I can't!' '18 and under free stile!' the answer said."

(Molly, 9)

Another girl, writing about her first trip away from home includes:

"In those two days I always said to my mother and father 'I will miss you so so so so so so much'."

Writing natural seeming dialogue for fictional stories is a harder task because the writer is not directly reporting what was said at an event in the past. Lynne's story,

written when she was nine, shows that she had trouble imagining, or at least portraying how her characters, Super Sally and Super Sarah, would speak. They speak in a rather stilted way, and their words do not show appropriate emotion considering their unsettling adventures. When Sally and Sarah fall through space after their planet blows up, they land on earth. Mary finds them and asks:

“Who are you?’ ‘I am Super Sally and this is Super Sarah’ explained Sally. ‘We are twins. We came from Uranic. It exploded.’ ‘How old are you?’ ‘Well we are ten minutes old in your time because one minute on earth equals one year in space’. ‘That’s strange’ said Mary ‘There’s mother calling to me. It’s tea time. Hide under the bed in case Rusty finds you’”

(Lynne, 9)

One might expect Mary to sound a little bit more surprised at finding twin aliens in her garden, and Sally might be a bit more upset about her entire planet exploding. However, Lynne does attempt some characterisation involving dialogue at the very start of the story.

“At last they landed. ‘Where are we?’ screamed Sarah who was always shy and afraid. Sally was mischievous and brave. ‘I think’, said Sally slowly ‘that we are on the planet earth.’”

(Lynne, 9)

Older children who are more familiar with the way dialogue is used in stories are better able to include speech to indicate personality and mood. In my story “A Fishy Tale”, written when I was ten, I made an attempt to show a character’s personality by the way she talks. I was not altogether confident in the attempt; I also commented on it to make sure the point got across.

“This is Heather. New girl in 2.1. Your dormitory. Look after her’ said Sarah. (She always talks in short sentences. She thinks it makes her seem short and snappy. It would need an extremely vivid imagination to believe that!)”

(Judy, 10)

Later in the story I made an attempt to show emotion through dialogue. Moira’s confusion is shown through the series of “wh” questions.

“‘Let Heather do it!’ I said.

‘Why? What? Where? When?’ Moira said desperately. ‘Just let her’ So Moira did.”

(Judy, 10)

In a story written when he was eleven, Dominic is able to use dialogue to distinguish between characters, to show relationships between characters and to indicate personality in a limited way. In the following section, the bully McPherson's words indicate the relationship between him and the narrator i.e. it isn't very friendly!

“When I woke up I was sitting on the Deck and it was night time, everyone looked a wee bit drunk. We were towing the whale. It was not until then that I realised how big it was, it was a monster. I went and joined the rest of the crew. I was greeted warmly. ‘Good shot Se mou!’ at this McPherson stepped forward ‘I threw that shot! Come on you frog brained sissy! We'll fight it out!’ And before I could do anything he charged at me.”

(Dominic, 11)

In this last excerpt, we see something of the personality of the narrator come through from his thoughts as he goes on the harpooning trip. The speeches indicate his emotions, as well as the suggestion that his character is quite brave and a bit foolhardy.

“ ‘Oh Oh !’ I thought. I was at the very front of the boat, therefore I would have to throw the harpoon. ‘Never mind! This was fun!’ Now we were right up near the whale. My opinion of whaling changed quite rapidly when I fell out ‘Aggggh!’ The water was icy cold and I gave a last despairing cry ‘Help!!!’

It wasn't as bad as it could have been for I had managed to take a good breath before sinking and could see around. A dark shape loomed up on me. ‘A small whale? A boat? Oh Dang. A bloomin squid!’ Just then something like a Boa Constrictor wrapped itself round left leg. I would have screamed if I hadn't been underwater, for unlike an octopus's tentacle which is purely for gripping, the squid has knives in its suction cup.”

(Dominic, 11)

It seems that young writers can include speech in their personal experience stories and use it to indicate relationships (although perhaps not intentionally) and distinguish between characters in a limited way. More advanced writers might be able to use speech to convey emotion. It is harder for writers to write convincing

dialogue for fictional stories; they might be less able to distinguish between characters or make any of them sound natural. However, as writers mature, they are able to include the way characters say things to show personality; are better able to show emotion through speech; and can use it to show relationships.

Table 3-7 lists the speech sub-categories in the story analysis scheme. The sub-categories of **speech, action**; **speech, mood**; **speech, personality**; **speech, plot**; **speech, relationships** are taken from the above discussion of the dialogue in expert and learner's writing. These sub-categories represent a range of techniques related to describing character's appearances. **Speech, simple**; **speech, detailed**; and **speech, figurative** are intended to capture the level of sophistication of the dialogue. **Speech, location**; **speech, object**; and **speech, weather** were also included to cover segments of the stories where characters describe their surroundings.

Speech subcategory	Description	Example
Speech, action	Speech indicates that some action is happening	The book was telling him to run
Speech, mood	Speech indicates mood. The way the character speaks or the content of what they say implies or states emotion.	"Help!" said a screaming Jenny
Speech, personality	Speech indicates personality. The content of the speech, or the way it is said indicates the character's attitude.	"Oh , your friend Fred is dead. The monsters ate him and I had a piece too. Yum yum"
Speech, plot	A plot point is revealed through dialogue. For the game stories, any of the plot points detailed in the action section use this code if revealed by speech.	"I want you to find Fred"
Speech, relationships	Speech indicates relationship by the way it is spoken or content which implies or states relationships between characters.	"Bessie, your best friend"

Speech, simple	Simple speech reported. Any speech segment which is not coded as detailed is simple	“Ok, Gran”, said Daniel.
Speech, detailed	Detailed way of speaking included. Adverbs which explain what tone of voice or volume was used are detailed.	Then with a triumphant roar, Daniel said “Die, you Fred eater!”
Speech, location	Speech contains location description. Some pupils will use dialogue to describe the surroundings.	“Jenny, look at that building – it’s ancient!”
Speech, object	Speech refers to object.	“Trap her in your purple bubble and I will kill her with my blue norb”
Speech, weather	Speech refers to weather. A character makes a remark about the weather or atmosphere	“It looks as though a storm is coming”

Table 3-7: Speech sub-categories.

3.3.7 Other characterisation codes

This section lists miscellaneous characterisation techniques which children use in their stories. These codes were created after a pilot test of the analysis scheme on personal experience stories written by twenty two nine year olds. Sensations such as icy fingers running down one’s spine; preferences of characters such as their favourite colour; and a character’s reasoning or internal dialogue were techniques which the children used but could not be classified under the other characterisation categories. These codes are summarised in Table 3-8.

Other characterisation codes	Description	Example
Sensation implies mood	Bodily sensation like pain or pleasure which would have bearing on mood.	I gasped in horror as my blood froze

Sensation related to actions	A previous action has given a character a sensation or pain, nausea, pleasure	I wasn't dead or hurt that bad
Sensation relating to surroundings	The environment has an effect on the bodily sensations, tastes, smells, touch sensations the character experiences.	You could taste the smells of the exotic fruit on the tip of your tongue
Reasoning simple	A character's thought is recorded, but with no explanation	I didn't believe her
Reasoning detailed	The character's thought process is recorded. Detailed reasoning includes explanations of why a conclusion was reached, or an elaboration of the problem facing the character.	I thought he was a monster so I was going to kill him
Preference	A character's preference is indicated. This code was introduced to record character's likes and dislikes, for example hobbies or favourite foods.	He played ice hockey, football and rugby

Table 3-8: Other characterisation codes.

3.3.8 Setting

“Establishing the context of time and place provides the canvas on which the rest of the story is painted. However, the description of a place, setting or scene frequently does more than this. Writers use it to evoke a particular mood which colours the reader's expectations and emotions. When this happens, the setting of a story not only provides a canvas for the reader's imagination, but also determines the palette to be used as the story unfolds in the reader's head.”

(Ellis and Friel, 1995; p74).

This section describes the techniques authors and learners use to set the scene in their stories, and lists the setting categories of the story analysis scheme.

The setting sub-categories are location, objects and weather. For each of these sub-categories, the descriptions can be simple, detailed or figurative. Ellis and Friel (1995), however, point out that long location descriptions can be counterproductive because they slow down the pace of the story and detract from action. Learner writers will learn to be economical with location descriptions, and develop a sense of where they are appropriate.

Ellis and Friel's teaching guidelines (1995) capitalise on children's sense of place from their own lives and from reading. The guidelines help the teacher to show her pupils that place descriptions can build an atmosphere in the story, and the sorts of techniques an author can use to achieve this. Through playing the part of a naïve reader, the teacher can encourage the children to fill in important details of familiar places, perhaps in a way which shows these places in a new light. In writing place descriptions, the children will learn to observe their world more closely. The guidelines suggest exercises on detailed description of familiar places; descriptions of how a place may change over time; how word choice can build up an atmosphere in the story; personification of natural forces such as the sun; the use of simile and metaphor; and how location and characters can be linked together.

3.3.9 Location

3.3.9.1 Location descriptions in experts' writing

The location category takes into account both the time and geographical setting of the story.

Firstly, descriptions of a place help the reader to imagine it and this draws the reader into the story. Consider this extract from the science fiction novel "Consider Phlebas" by Iain M Banks (Banks, 1987).

"Vavatch lay in space like a god's bracelet. The 14 million kilometre hoop glittered and sparkled, blue and gold against the jet black gulf of space beyond. As the Clear Air Turbulence warped in towards the orbital, most of the company watched their goal approach on the main screen in the mess. The aquamarine sea, which covered most of the surface of the artefact's ultra dense base material, was spattered with white puffs of cloud, collected in huge storm

systems or vast banks, some of which seemed to stretch right across the full 35,000 kilometre breadth of the slowly turning orbital.

Only on one side of that looped band of water was there any land visible, hard against one sloped retaining wall of pure crystal. Although, from the distance they were watching, the sliver of land looked like a tiny brown thread lying on the edge of a great rolled-out bolt of vivid blue, that thread was anything up to 2000 kilometres across; there was no shortage of land on Vavatch.”

Iain M. Banks is particularly good at evocative descriptions of other planets and unexplored tracts of space. This skill is important for an author whose setting is a fictional world which none of his readers can have experienced. Thus science fiction and fantasy authors often devote a lot of effort to establishing a fictional place. Some go to the extent of drawing and printing maps of an area (e.g. J.R.R. Tolkien); others used striking language to help the reader's imagination. In stories where the location is known to the reader the author can still surprise and delight by describing familiar scenes in a new way. Authors also use location in a symbolic way, perhaps linking a character with a particular place. This skill was not used by any of the young writers in the field study.

The time setting of the story also has a part to play because of the constraints it places on the characters, the social setting, and the technology and artefacts in the story. If a historical story is to be authentic then the personalities and attitudes of the characters should be consistent with the social atmosphere of the time. In turn, these constraints influence plot by restricting the kinds of things the characters can do to the kind of things the characters would do in that social atmosphere. As an example, consider “Jane Eyre” by Charlotte Bronte (Bronte, 1847). When the book was written, children were strictly “seen and not heard”. In that social climate, it is plausible that the recently orphaned Jane should be subject to inhumane practices at her boarding school. A 20th-century Jane would probably have been supported by the RSPCC, social work and numerous other agencies set up to prevent cruelty to children. However, the plot of “Jane Eyre” depends on the rather grim series of events which are forced on her by her circumstances and the social conventions of the time. The same story set in our time would seem extremely far-fetched and old-fashioned.

Writers also manipulate time in stories for artistic effect. They condense large passages of time in which nothing happens in order to focus on the important events in more detail. For example, in George Mackay Brown's "Ikey" (in Mackay Brown, 1995), the story is divided into the months of the year and the entry for each month focuses on one event which happened to the main character in this time, with a brief description of the passage of time between this entry and the previous one. Writers may also expand time with a lengthy description of a short space of time. In the following excerpt from "The Children's Feast" by George Mackay Brown (in Mackay Brown, 1995), the writer describes at length events which happen very quickly. He also switches from describing the action to commenting on them and offering more information about the characters.

"A boy ran past along the street and the scoop of his jersey that he held out with both hands was weighted to overflowing with oranges, apples and bananas.

A girl ran past with a straw basket on her arm; and the Hamnavoe housewives knew pots of syrup and jams, and packets of sugar and tea, when they saw them.

They had not time to wonder where the parents of those bairns – fishing folk – had the money to buy such delicacies in this poorest winter in folk's minding, when the widow's boy Pat Fara came stumbling through the snow carrying in front of him on a big plate a pig's head, with an orange in its gob.

And after Pat Fara came Johnny Cauldhame staggering under a sack of coal, and there was a Jamaica rum flask sticking out of his jacket pocket. (It was known that Johnny Caulhame's father was bad with bronchitis, and had not been able to cut and cart peats in the summer.)

Then, a few seconds later, a boy came as if he was wearing armour, he clanged so much..."

The sequence of story events are not always in chronological order; writers use flash backs and foreshadowing to build suspense.

The expert writer describes the place where the story is set to help the reader imagine the story more clearly. The time setting of the story is also important. At a low level, the author manipulates it to focus the reader's attention on important events and build

suspense. At a higher level, the way characters behave and the technology that is available to them is constrained by the time setting. The next section considers the use of location descriptions in learners' stories.

3.3.9.2 Location descriptions in learners' stories

In the very early stages of learning to write, when the story consists of a line of text describing a picture, location descriptions are uncommon. Information about the place is usually contained in the picture, and as there is no narrative structure, there is no need for time descriptions.

As the pupil begins to write longer stories, typically personal experience accounts of retellings of a story they have heard, they include many mentions of location. Places are mentioned frequently, often in conjunction with actions, as in this typical story by a five year old who has just learned to write.

“Ben and Lad went for an ice-cream and after they went to the park. When they got there they had a picnic in the park. When they got there they sat down on the grass. It was wet. They ran back home for tea.”

(Leanne, 5)

Simple time phrases crop up, almost sentence by sentence, as in the excerpt from Austin's story in Section 3.3.5.2. The excerpt is repeated below. At this stage, Abe has not learned to filter out uninteresting events; this results in a list of actions accompanied by the time each event happened.

“Then my whole family went to a restrunt for a wile. Me my Dad and Jackson went back to the Motel. Then my mom came back. That next day Mom, Dad Jackson and I got on a furry went to Nova Scho! When we got there we went to a bank and got money. Then went to a campsite and set up. I tool a walk to explore the site. My dad got fire wood and I built a fire. The next morning we got up and made breakfast. That day we went to a fishrey museum stayed therefor about Four Hours.”

(Austin, 9)

As writers progress, they learn to focus their stories perhaps around a single event, or a series of linked important events and so they change scene (time and place) less frequently. As awareness of audience increases, the learners learn to include

descriptions of familiar places so that the reader can imagine them too. The excerpt below is writing from a project on “Our Local Area”.

“My daisy plant lives in a grassy patch in my school. Its on a sloping bank and it gets very wet. Its sheltered and shady because of the hedge. It is one of a kind in its patch because it is surrounded by clover.”

(Judy, 11).

Young writers sometimes mention technology or social circumstances which aren’t appropriate to the time or place of the story. The excerpt below, from a ghost story written by an eleven year old, illustrates this.

“The ‘home’ was actually a hotel where once in 1724 two people, a mother and a son, were electrocuted and an evil curse is said to be placed on the old hotel.”

(Vicki, 11)

However, children may bring their own interests to their writing, resulting in accurate location details. The next excerpt is from a story Dominic wrote during the Cold War (in the mid Eighties). He lived near an air force base and was familiar with military planes. The location descriptions in this story are striking, and the technology details are accurate (e.g. the M.I.G. 23).

“A fireball speeding towards the horizon is an array of dazzling colours, maybe beautiful to some, but not to me - the lone man in a desert where a plane crashed. Always walking, toiling through winds that lift every tiny grain of sand in the godforsaken desert into a whirling dance. Also there is a cold, gnawing into my flesh like acid. A bleak landscape, nothing relevant in sight, just emptiness.

I see a movement in the corner of my eye. Tiny unrecognisable shapes, moving on a far distant sand dune, then the wind whips its immense swirling sand cloak over my eyes once more. Next time the cloak subsides the figures are gone.

Who knows where my plane is, a blazing wreck surrounded by Russians searching for me. Probably with dogs. It begins to snow, thick, heavy snow, and I as a futile defiance towards nature's wrath plough on half blinded by the snow and sand.

Even my thick pilots clothing will not keep the cold out. I am nearly hypnotised by the almost totally regular thuds my feet make. Thud, Thud, Thud, Thud, Thud, Thud. I fall flat on my face, but get up and stagger along, tottering like a drunk. A hound barks uncomfortable close by, and I grab my pistol in case I stumble right into a search party. I hear a whirring noise above me. A helicopter! I fall again and lie perfectly still. I had been relishing a dog fight with that M.I.G.23, it had come up behind my Tornado at about mach 1. I had slowed down sharply, and be overshot. I was about to pump him full of cannon shells when something ripped a hole in my fuel tank and all my instruments went wrong. I had ejected immediately, and landed in the middle of the Siberian desert.

The helicopter passes. I rise slowly and stumble onwards. After two hours of straggling I collapse into the snow, an exhausted heap. After a while I begin to feel warm and drowsy, this is how you freeze to death.

So be it. I shall die here - Alone.”

(Dominic, 11).

This story is extremely accomplished. Notice that the story events are not in chronological order; there is a flash back to the dog fight in the tense moment when the pilot is waiting for the helicopter to move on. The reader does not get an explanation for the pilot’s situation until this point. The suspense has been built up with the atmospheric description of the desert, and the suspicion of figures far away on the sand dune.

Table 3-9 shows the location sub categories in the analysis scheme. The use of figurative or detailed descriptions of location suggest that the writer has some skill in setting the scene for the story.

Location subcategory	Description	Example
-----------------------------	--------------------	----------------

Location, place	The geographical setting of story is mentioned. This can be on the large scale of countries and cities, or on a smaller scale such standing behind or in front of something	We went to the ruined castle
Location, time	Some sort of time ordering is placed on events.	Meanwhile
Location simple	Any description which is not detailed is simple	We entered the castle
Location, detailed	The location description is detailed. Dates and place names are detailed. Descriptions of a place with more than two adjectives are detailed	It was on a high mountain with a courtyard right around it
Location, figurative	The location description contains figurative language. Description of location is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.	Jenny and Daniel is just five minutes away from a great adventure

Table 3-9: Location sub-categories.

3.3.10 Objects

3.3.10.1 The use of objects in experts' stories

In some stories the plot revolves round an important object. In the horror genre, both objects and animals in the story can have great significance. The authors exploit the belief that old objects can be connected to events in the past. Ghost stories are full of haunted mirrors, monkey's paws, haunted African tribal masks and even, in one memorable story, haunted baths (from Elliott O'Donnell "Scottish Ghost Stories"). Because objects are often used as a link to supernatural events, they are important to the plot.

Some fictional characters have animals or objects as trademarks. Animals can also be used as trademarks to make striking pictures in the mind of the reader. The villain in one of the James Bond stories has a white cat which he strokes while he plots his evil deeds.

An author can take advantage of the associations people have between types of characters and objects or animals. In magical stories wizards often have hats and wands (even trainee wizards like Harry Potter need to have wands). Cats, owls and toads are also familiar motifs in magical stories. In “The Once and Future King” (White, 1987), the wizard, Merlin, has both a hat and an owl called Archimedes and for safe keeping he keeps one inside the other.

Sometimes animals are used in the description of characters’ traits. There are many animal metaphors in common use - “meek as a lamb”, “stubborn as a mule”, “sick as a parrot”. It is not surprising that characters should be likened to animals in evocative ways. In “The Wizard of Earthsea” by Ursula Le Guin (Le Guin, 1979) everyone in the islands of Earthsea has an everyday name and a True name. The True name is awarded to a teenager by a Mage to reflect the true nature of the individual. Such names are precious secrets because they can be used by unscrupulous wizards to gain power over individuals.

“After that Ged left off his weak thoughts and his gazing ahead over the sea and he saluted Yarrow more earnestly, perhaps, than Vetch. The thought of her brought to his mind the sense of her wise and childish weakness. She was not like any person he had known. (What young girl had he ever known at all? But he never thought of that.) ‘She’s like a little fish, a minnow, that swims in a clear creek,” he said, “-- defenceless, yet you cannot catch it.’

At this Vetch looked straight at him, smiling. ‘You are mage born,’ he said. ‘Her true name is Kest.’ In the old speech, Kest is minnow, as well Ged knew; and this pleased him to the heart”.

Tales in exotic locations can take advantage of the exciting possibilities offered by fierce and venomous animals who have homes in the area. Willard Price's adventure stories are perfect examples this. There are a number of titles in the series – “South Sea Adventure”, “Amazon Adventure”, “African Adventure” (Price, 1980.a; Price,

1980.b.; Price, 1980.c) and many more - and the plot of each consists of a series of encounters between the boy heroes and the dangerous creatures in the area. However, readers would feel rather cheated if “Amazon Adventure” contained an exciting account of a struggle with a polar bear.

There can be certain advantages to introducing a foreign animal into the story location, if this is done in a controlled way. An interesting (although rather familiar!) plot can develop if a dangerous or unusual creature is for some reason brought to a densely populated urban area. Usually, the objects and animals in a story should be consistent with both geographical and temporal location of a story.

Occasionally authors also import animals from different time periods into their story in a playful exploration of “what would happen if?”. Michael Crichton’s “Jurassic Park” (Crichton, 1999), for instance, explores what could happen if anybody was stupid enough to bring back dinosaurs. However, this book spends a good deal of time establishing how such an anachronism could occur with some fictitious scientific techniques. In general, it is likely that the audience will tolerate inconsistencies in location if a reason is given for it, or it is for humorous effect.

To summarise, objects and animals can be used to drive plot; they can be used in a symbolic way to draw attention to some feature of character; and they should be consistent with both time and place in the story, although this can be manipulated to drive the plot.

3.3.10.2 The use of objects in learners’ stories

Young pupils who have just learnt to write often include objects or animals in their stories, such as pets, toys and food. They might write a wish list of the toys they want for Christmas, or describe the food they eat on a picnic. The next example is a story by a five year who has recently learned to write.

“I saw a horse. And I want my teddy. And I want to bring my cars. And my big car. And I want to bring my teddies. And I want to bring my jigsaw. And my computer.”

(Emma, 5)

The objects may not be linked together into a plot and are often mentioned rather than described. This may be because the stories are illustrated.

Even as children get older, they still include lists of objects, particularly in personal experience accounts of Christmas or birthdays. The following example is an excerpt from Lynne's school diary about Hallowe'en.

“On Sunday night I went out as a Arab Judy as a clown and Kerrie as a gypsie I got 50p 3 apples 2 oranges a toffee chew and a lot of nuts and two rolos to eat on the way I carried the turnip lantern”

(Lynne, 9)

As with the reporting of events in personal experience stories, the writers will learn to focus on those aspects which are most interesting to the reader. For example, instead of faithfully reporting every Christmas present, the writer might choose just to describe her favourites. This extract is from a letter written by a fifteen year old just after Christmas.

“It was quite a good one as Chistmasses go. I got a new jacket and two new jumpers. My brother got a mountain bike and you'd think his bum was permanently welded to the seat. My sister has got a ghetto blaster and you'd think the volume was stuck at 'full'. I can hardly hear my tapes for hers next door!”

(Wendy, 15)

In imaginative writing, objects play more of a part in the plot. Children often have fairy tales inflicted on them, and enjoy horror stories such as the “Goosebumps” series (e.g. Stine, 1993). Both of these genres use frequently use objects to forward the plot. The example below explicitly refers to this.

“In the centre of the room was a glass case and in it was a lamp. Now, Eliza knew that if you rubbed a lamp in a strange cave in a forest something was bound to happen sooner or later. Besides, her grandmother had told her the story of Aladdin.

So she lifted the lid of the case and took out the lamp. She gingerly rubbed it with her sleeve. WhoopAgalop! Whoosh! Whee! Caboom”

(Judy, 10).

Another example is a story by an eleven year old boy who finds an enchanted hockey stick with dire consequences.

“Just then this shadow appeared and said ‘Hey, do you like hockey, because if you do I’ll give you this magic stick which makes you play brilliant.’ So Richard took the stick to the game and the manager said ‘I’ll give you one more chance to get a game for us.’ So the game had started, and in five seconds Richard went through the defense, in a flash and scored a wonder goal and then he felt himself shrink. Then he turned into a snake and tried to poison the players.”

(John, 11)

Writing associated with project work may mention authentic objects suitable to the time and place of the story. For example, the next extract is taken from writing related to the “Desperate Journey” project which used to be taught in primary seven classes. “The Desperate Journey” is a book by Kathleen Fidler about the Highland Clearances in Scotland (Fidler, 1984).

“The floor of the clachan was made of earth and the turf walls were made one metre high. The frame of the hut was of crooked timber. The wife and bairns squatted round the peat fire. Behind them you could see the bunks. Strangely enough, the sheets and blankets were spotless and there were no bugs or fleas.”

(Judy, 11)

The details of the inside of the clachan are accurate for the time. Also, the description of the bedding in the above example brings the reader’s attention to the characteristics of the family who live in there. Although they are poor, they seem to be clean.

Table 3-10 shows the sub categories for object descriptions in the stories.

Object subcategory	Description	Example
---------------------------	--------------------	----------------

Object, animal	An animal or creature is mentioned. If the animal has a large part in the story, and it is anthropomorphised, then it should be counted as a character rather than an animal.	A huge shark bit her
Object, simple	The object has a simple description. Any object coded segment which is not detailed is simple.	Daniel found some scuba gear
Object, detailed	The object is described with detail. Two or more adjectives are used to describe the object or the object's location or function is mentioned.	Then the talking gold book told him to..”
Object, figurative	The object description contains figurative language. Description of object is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.	He had a ton of leaves for a bed

Table 3-10: Object sub-categories.

3.3.11 Weather and Forces of Nature

3.3.11.1 The use of weather and forces of nature in experts' stories

Weather and other natural effects are particularly good for adding atmosphere to a story. This is apparent in the kind of horror story where the figure of a mysterious Countess is illuminated by a lightning bolt as she stands dramatically at the head of the stairs. It can accentuate and exaggerate themes and moods in a story in a symbolic way. Readers can become attuned to assessing whether something good or bad is about to happen from environmental cues.

When weather is used symbolically it is parallel to the plot but has no direct influence on it. Of course, weather also often does play an important role in plot

events. The book “The Long Winter” by Laura Ingalls Wilder (Wilder, 1940) has a successful plot based almost entirely on the effects a very severe winter has on a particular family. The blizzards are so bad that the crops are ruined, the livestock suffocate because their breath freezes their noses to the ground and food cannot be shipped in from other settlements because the train cannot make it through the snow. This could perhaps also be characterised in a symbolic way as a struggle between the pioneers and the harsh land where they have settled, but the natural forces have causal effects in the story and should therefore be considered as being crucial to plot as well as important to symbolism.

Some authors link weather patterns to characters. This is a form of symbolism which is common in fantasy or mythic tales. Usually bad weather is associated with evil people and good weather is associated with the heroes. This is true of “The Lion, the Witch and the Wardrobe” by C. S. Lewis (Lewis, 1950). Narnia is under the rule of the evil White Witch at the start of the book. The turning point in the story comes when the Christ like figure of Aslan the lion comes back to Narnia to liberate his people. His arrival changes the climate of Narnia entirely from a perpetual winter to a balmy spring. This passage describes the change in the forest after Aslan has returned.

“Every moment the patches of green grew bigger and the patches of snow grew smaller. Every moment more and more of the trees shook off their robes of snow. Soon, where ever you looked, instead of white shapes you saw the dark green of firs or the black prickly branches of bare oaks and beeches and elms. Then the mist turned from white to gold and presently cleared away altogether. Shafts of sunlight struck down on the forest floor and overhead you could see a blue sky between the tree tops.

Soon there were more wonderful things happening. Coming suddenly round a corner into a glade of silver birch trees Edmund saw the ground covered in all directions with little yellow flowers -- celandines. The noise of water grew louder. They actually crossed a stream. Beyond it they found snowdrops growing.”

Naturally, weather and other environmental effects should be consistent with and add authenticity to the geographical location of the story. In real-life, the climate of a place is strongly associated with it. Many tourists visit Scotland every year with the

hope of seeing rain drenched hillsides and romantic mist shrouded castles. They are rarely disappointed. Similarly, the Sahara is associated with arid dry heat. In the book “Dune” Frank Herbert contrasts two very different planets - Calidan and Arakis (Herbert, 1968). The main way he does this is through the differences in the climates of the planets. Calidan is a fertile planet, largely covered in ocean where the rainfall is very high. In the film of Dune the scenes on Calidan have a restful, refreshing feel to them because of the abundance of water. Arakis is a desert planet where water is so scarce that the inhabitants must conserve and recycle their body moisture in a garment called a still suit. Life on Arakis is hard; when the characters move from their home planet Calidan to Arakis the climate puts many obstacles in their way.

Although one would not expect novice writers to use climate to build a sense of location as skillfully as Frank Herbert, small environmental details can make geographical location seem more real. It is also the case that inappropriate climates can destroy a sense of location.

Weather can be used in a symbolic way in relation to general motifs or characters in the story. It can also have a role in the plot, and contribute to a sense of location.

3.3.11.2 The use of weather and forces of nature in learners’ stories

Young writers often include the weather at the very start of an imaginative story, as in “One lovely sunny day...”. This is a convention for starting a story, because the weather is often not referred to again. In personal experiences, however, the weather frequently occurs as part of the plot. This may reflect the general preoccupation British people have with the weather. For example, children will write about enjoyable experiences playing in the snow, or in the sunshine.

The following is an excerpt from an imaginative piece where the weather is the basis of the plot.

“The thick, sea mist was getting thicker. Everything was blurred, or was it just the tears in my eyes? I was lost in the highlands of Scotland in a fog. To make matters worse, I had just moved to Sutherland. I was trying to find my way home from school over 3 miles of country.

Which way now?

I took a chance and went left. I was stumbling over stones and bricks. There were strange noises now. Screams, clicks and gurgles. There was a funny panting sound. Was it me breathing? There were odd shapes and patterns in the fog. They were horrible and eerie, like the kind of nightmare you wake up screaming from.

And then it began. A horrible, steady sound. A thump, thump, thump. What was it? A shape in the fog was behind me. Thump, thump, thump. I ran stumbling and gasping for breath. A noise echoed strangely around me. ‘Juuudy waiiiit!’ ”

(Judy, 11)

The sand storm in Dominic’s story in Section 3.3.9.2 is described in detail with extended metaphors. The sand storm “dances”, it is a “swirling sand cloak”. While weather is important to the plot, it is also used in a symbolic way, to show the struggle between the pilot and the elements:

“It begins to snow, thick, heavy snow, and I as a futile defiance towards nature’s wrath plough on half blinded by the snow and sand.”

(Dominic, 11)

Weather subcategory	Description	Example
Weather, simple	Weather description is simple. Any weather segment which is not detailed is simple.	It was a cold day
Weather, detailed	Weather description is detailed. More than one adjective is used to describe the weather.	The musty air was a change to the clean country air

Weather, figurative	Weather description contains figurative language. Description of weather is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.	Dust charged around, everywhere!
---------------------	--	----------------------------------

Table 3-11: Weather sub-categories.

3.3.12 Applying the story analysis scheme

Stories are coded with categories in the analysis scheme phrase by phrase. A single phrase can have multiple categories attached to it, reflecting the many levels at which a story can be read. Some phrases are unclassifiable although the majority of story phrases will be coded. The story is not pre-divided into phrases because it is not possible to determine phrase boundaries automatically. The meaning of a collection of words determines how they will be segmented into phrases. For each phrase, the rater should: decide upon the category; then decide whether it is simple or detailed; then decide on the appropriate sub-category. For some phrases, none of the sub-categories will apply. Some codes are mutually exclusive; for instance, a phrase cannot be both **simple** and **detailed**. Other instances of the same category are orthogonal; for instance, a phrase can be both **appearance, facial expression** and **appearance, relationship**. A worked example of the analysis scheme applied to a pupils' story can be found in Appendix E.

3.3.12.1 Inter-rater reliability

This section reports inter-rater reliability for the story analysis scheme. Cooper (1977) states that when raters from the same background are trained with a holistic scoring guide "they can achieve scoring reliabilities in the high eighties and low nineties on their summed scores from multiple pieces of a student's writing." (Cooper, 1977; p.19). A reliability co-efficient of .90 is considered acceptable for measuring individual growth in teaching and research, while .80 is considered acceptable for the evaluation of a programme (Cooper, 1977).

The correlation co-efficients reported in Table 3-12 were obtained from a Pearson product-moment correlation of the story analysis scheme categories applied by myself and by another researcher. The second researcher was trained to analyse the stories using the instructions in Appendix E, and by viewing a demonstration by the first researcher. A program called Atlas ti, made by Scientific Software, was used to code the stories and output category frequencies. Twelve of the stories were second rated; four from the control group, four from the experimental group, and four from the pre test for the experimental group. A story from each of levels B, C, D and E were selected at random from each set of stories. This was to cover the widest range of levels of sophistication from the sample.

	Pearson correlation co-efficient (r)
All codes	.91
Personality	.65
Moods	.57
Relationships	.98
Action	.98
Appearance	.74
Speech	.94
Location	.75
Object	.52
Weather	.65
Simple	.88
Detailed	.98
Figurative	.21

Table 3-12: Inter-rater reliability across categories.

Inter-rater reliability across all the categories was .91. This is acceptable both for testing the effect of a writing programme (the virtual role-play activity) and for recording the progress of individual pupils, according to (Cooper, 1977).

It is interesting to consider the reliability for individual categories because this indicates areas where the scheme should be improved, or the instructions clarified for future research work.

The second rater accepted more subtle uses of the techniques. For example, the second rater's definition of the mood category was broad enough to cover general story atmosphere and techniques such as foreshadowing. Some of the story segments which the first rater considered to be sensations or preferences, she coded as moods.

Another case where the raters consistently applied different categories was in descriptions of features of the environment such as waves on the sea. The second rater classed these as objects, while the first considered them to be location. There is low reliability for the figurative codes in all the categories. This is a knock-on effect from the discrepancy between coding of moods and sensations/preferences (because the sensation category does not have a figurative code); and the confusion between objects and location (The first rater coded segments as **location, figurative** while the second rater coded them as **object, figurative**).

The story assessment scheme has high inter-rater reliability when the second rater is given a demonstration of how to apply it. It remains to be seen how reliable the results would be if the raters were trained using written instructions alone. The scheme is likely to be useful to other researchers who specifically wish to study the characterisation and setting in stories. As it is time consuming to apply, it is unlikely to be useful to class teachers in its current form. It is possible that the scheme could be adapted into a holistic rating scale, although it would be necessary to correlate the results of the holistic rating with the more detailed frequency counts.

3.4 Summary

This chapter described a story analysis scheme for assessing characterization and setting in children's stories. The characterization categories in the scheme are: personality, moods, relationships, appearance, action, and speech. The setting categories are: location, objects and weather. It is hypothesized that preparation in the virtual role-play environment will have an effect on the descriptions of the story characters' personality, moods and relationships. The portrayal of these aspects of the characters could be accomplished through descriptions of their actions, appearance or speech. The virtual role-play environment is also hypothesized to have an effect on the location descriptions in the virtual environment.

The game characters played by the role-play leader in Ghostwriter have distinctive, exaggerated personalities (see Chapter Five). It is hypothesized that the role-players

will recognise the game characters' personality traits during the role-play and include them in the story afterwards.

During the virtual role-play exercise the role-players will experience an adventure. The game is designed to be fun, tense, and sometimes scary (see Chapter Five). The role-play leader's task is to involve the role-players in the story so that they become emotionally involved. This preparation activity is likely to encourage children to include mood descriptions of the characters, and to imply mood through speech in their stories.

The focus of the role-play exercise is on exploring the relationships between characters. The hypothesis is that the role-players will gain insight about how the characters feel about each other, and that this insight will be reflected in the stories they write afterwards.

Ghostwriter is a vivid, rich, graphical representation of a ruined castle. Certain landmarks in the environment are relevant to the plot, for example, the castle temple where the sorceress wants to cast spells. For these reasons, stories written after playing the game are expected to include descriptions of the game environment.

The effects of the virtual role-play environment on these aspects of characterisation and setting are investigated in Chapter Seven.

4 Software and Stories

4.1 Introduction

This chapter explores two main questions. The first is: how can computer software be used to assist children in creating narratives? The second is: how can computers be used as a medium for storytelling? Previous work in these areas supports the hypothesis that role-playing in a virtual environment is a fruitful preparation activity for creative story writing. This chapter also suggests some ways to approach the design of a virtual role-playing environment.

Computer software, and virtual environments in particular, can help children to create, write and tell stories. Section 4.2 describes theories of presence which specify the technological requirements of the virtual environment necessary to meet the educational objectives described in the previous chapter. Presence is the subjective sense of *being there* in a virtual environment. Perceptual presence, social presence and presence of self all contribute to this feeling of presence.

Social and self presence are particularly important for a role-playing virtual environment. Section 4.3 describes online communities in text-based virtual environments. Evidence from interactions between members of online communities show that users of a text based virtual environment can experience social and self presence. This supports the hypothesis that real time text based communication is suitable for role-playing.

Section 4.4 describes previous and current research into software designed to support children as they collaboratively create stories. These projects are contrasted with the Ghostwriter project in terms of their educational aims and use of technology. Differences concerning the role of adults in the design and use of this software emerge.

Computers can be seen as a new artistic medium. “Digital storytelling” is starting to take off as a popular form of entertainment; the computer games industry is growing rapidly. While traditional ideas from narrative theory can be used to design digital

stories, they must also be extended to take account of interactivity. The tell-tale blurring of the distinction between audience and actors in digital stories challenges the presentation of coherent plots and consistent characters. Research into interactive drama and analysis of commercially available computer games suggest some guidelines for designing a story into the virtual role-playing environment. These are discussed in Section 4.5.

Finally, Section 4.6 gives a summary of design guidelines drawn from educational virtual environments and digital stories. These guidelines are exploited in the next chapter, which describes the design of Ghostwriter.

4.2 Educational objectives and presence

This section introduces the theory of presence in virtual reality and explains how presence can be used to fulfill the educational goals of collaborative story-making in a virtual environment.

Intuitively, presence refers to a sense of *being there* while using a virtual environment. A stricter definition comes from Lombard & Ditton (1997). They define presence as "the perceptual illusion of non-mediation". When a person using a communication environment uses her normal perceptual, cognitive and affective systems to respond to the environment as if the experience is not transmitted through a medium, she is said to experience *presence*. Presence can occur during the use of any of the human-made media – television, telephone, cinema or virtual environments. Lombard and Ditton claim it cannot be felt in degrees; at any time a media user will experience presence or not experience it. The intuitive sense that some media heighten or lessen presence stems from the ratio of instants with presence to instants without presence during media use. The probability that presence will be evoked can be increased both by providing stimuli to the perceptual, cognitive and affective systems of the user through the medium, and by masking non-mediated input to the user's senses. Biocca (1997) points to the ordinary cinema experience as an example. Cinema goers are immersed in the virtual reality of the film world because they see and hear the sights and sounds of it, and engage

emotionally with the fictional characters. The real world is deadened for them because they cannot see or hear what is happening in the quiet, dark film theatre round about them, and the social conventions of cinema going prevent normal social interaction.

There are three forms of presence – physical, social and presence of self. Through evoking these three types of presence, Ghostwriter can achieve the educational objectives for collaborative story making.

4.2.1 Physical Presence

Lombard and Ditton (1997) define physical presence as the illusion that a virtual reality experience is perceptually real. The probability that users will experience presence is related to how similar the looks, sounds, feels, tastes and smells in the mediated experience are those to in an unmediated experience. When the environment stimulates the user's senses and responds to her actions, the more immersive the experience, and the greater the likelihood of experiencing physical presence (Anderson & Casey, 1997).

The rich graphics, music and sound effects in the Ghostwriter world are intended to provide an experience on which the children can base their imaginative stories. The more children consistently experience physical presence through the role-play, the closer it is to a real experience. As writing in the expressive mode about events one has experienced is considered to be easier than poetic or imaginative writing (Britton et al. 1975), the virtual role-play should make the task of writing a story easier. This type of presence also illuminates some advantages a virtual environment can have over real-life dramatic play. Classroom improvisation usually takes place without much attention to costume, sound effects and stage sets because these things are time consuming to create (Rizzo and Saudelli, 1999). Ghostwriter provides ready made, visually appealing sets, and sound effects and music. Another advantage of the virtual environment over real-life dramatic play is that users can perceive or even participate in impossible events which defy the physics of the real world. This feature of virtual environments is particularly suited to fantasy play where magical events are expected.

Chapter Five details the features of Ghostwriter which are intended to increase users' sensation of physical presence.

4.2.2 Social Presence

Physical presence is mainly engendered by the *form* of the medium. Another aspect of presence is related to the *content* portrayed by the medium; social presence is included in this category.

Biocca (1997) defines social presence: "The minimum level of social presence occurs when the users feel that a form, behaviour, or sensory experience indicates the presence of another intelligence" (Section 7.2). This definition is narrower than the definition given by media theorists for whom presence is the "extent to which a medium is perceived as sociable, warm, sensitive, personal or intimate when it is used to interact with other people." (Lombard & Ditton, 1997). However, Biocca's definition also encompasses interactions between users and computer controlled characters.

Social interactivity within a virtual environment is likely to lessen the feeling that the environment is mediated. If one is able to communicate successfully in the virtual environment it resembles an unmediated experience more closely. Heeter (1992) says "placing more than one person in a virtual world may be an easy way to induce a sense of presence regardless of the other perceptual features of the world". Biocca and Levy (1995) suggest that the ability to interact with large numbers of people, for example via multi player virtual reality games, may increase presence. However, the sorts of interactions which can take place and the ways the users are represented in the medium will have different effects on presence.

Computer-mediated communication (CMC), for example in MUDs (multi-user dungeons), Internet Relay Chat and bulletin boards, creates sustained presence through social interactions. Although the perceptual realism of these media is very poor (limited to text and possibly two-dimensional graphics) the social presence is so great that users spend a good deal of time using CMC and occasionally find it more compelling than real life (Turkle, 1995; Griffiths, 1998; Bruckman, 1992). Previous

work on computer-mediated communication is explored in more detail in Section 4.3.

Social presence provides the necessary conditions for co-operation to take place within a virtual world. In Ghostwriter, social presence is necessary to encourage the children to empathise with the story character. As a role-player improvises lines from the point of view of a fictional character she must place herself in the shoes of a fictional character by imagining the thoughts and feelings of that imaginary person, and responding appropriately to the feelings of the other characters. The medium should interfere as little as possible with the role playing because slipping out of role is distracting and makes the enactment less successful. Evidence from text-based online communities and an educational project called MOOSE Crossing supports the hypothesis that users can experience social presence through computer-mediated communication. This is discussed further in Section 4.3.

4.2.3 Presence of self

Self presence is defined as “the users’ mental models of themselves inside the virtual world” ; differences in self-presence are “due to the short term or long term effect of virtual environments on the perceptions of one’s body (i.e. schema or body image), physiological states, emotional states, perceived traits, and identity” (Biocca, 1997; section 8). Biocca focuses particularly on the effect an immersive virtual environment can have on a user’s body schema, but he also considers the user’s mental model of the user’s own identity. He notes that the social role and body morphology of the avatar which represents the user within the environment can have an effect on the user’s perception of her identity. This example implies that both physical and social presence can have an effect on presence of self.

The definition of presence of self is broad and under-specified. However, it mentions the way the user feels about the mediated experience and about himself. This broadens the scope of presence to account for the user’s emotional states as well as for his perception of physical events and social relationships during a virtual experience. The quality of the emotional experience during the virtual role-play is important because emotional involvement is central to drama. As discussed in

Chapter Two, a role-player is emotionally involved in the dramatic events from the point of view of his character while reflecting on the events from his own perspective.

Self presence is presumably dependent on the user's willingness and ability to suspend belief while using the medium, an effect commonly found in different television viewers and cinema goers. This will vary over time for each user and will be related to their concentration, imagination, and level of technical sophistication. It will also be dependent on the quality and content of the medium.

A medium can evoke emotional responses from the user during the mediated experience. The more emotionally involving the experience is, the more it is likely to change the emotional state of the user and increase self presence. The mediated experience of film watching can create the illusion of non mediation for long periods of time by playing on the emotions of the viewer. Some genres of film, such as “weepies”, rely on this.

The task the user must carry out using the medium, and her attitude towards it, will also influence presence. A disinterested, unmotivated user will not experience presence, whereas an interest in the task would contribute greatly to presence. The design of the story embedded in Ghostwriter, as discussed in the next chapter, is loosely based on a popular children's book to try to make it appealing to children.

The task in Ghostwriter is based on the social interactions of role-play. Social presence is required to make the experience of role playing emotionally involving because it requires actors to imagine how their character feels and how other characters are feeling. The perceptual experience in the environment is also intended to invoke emotions to make the experience seem more real. For example, the music is designed to create an atmosphere, usually tense, to involve the users emotionally and help them to imagine the experience is real. Thus, self presence in Ghostwriter is dependent on both social and physical presence. The “System Design” chapter discusses how Ghostwriter has been designed to evoke self-presence.

4.3 Social and self presence in online communities

There is evidence that users experience social presence and presence of self in very simple text-based virtual environments such as multi user dungeons (MUDs) and Internet Relay Chat (IRC). That is, users of these communication media find them “sociable, warm, sensitive, personal or intimate”. This phenomenon is surprising because one might imagine that tone of voice, facial expression, body language or possibly some kind of ephemeral “human-ness” would be necessary for true intimacy. In fact, in these abstract worlds created from words alone, people do make close friends. They may even find it easier to socialise in this medium than in real life. This section explores the strange worlds of MUDs and IRC and discovers the sorts of interactions and identity transformations that take place there. Two examples of online communities are given – Habitat, an online community intended for adults, and MOOSE Crossing, a text based educational environment for children.

4.3.1.1 IRC and MUD

Rheingold (1993) notes that several forms of online communities exist and discusses the necessary conditions for creating these communities. Two types of online communities are important in this discussion – IRC and MUDs. IRC (Internet Relay Chat) is a form of globally distributed, synchronous, text based communication between multiple users with a common interest. It is unlike face to face communication because it allows users to talk and listen at the same time. As a user types in messages to other members he must keep an eye on incoming messages in order to keep up with the discussion. This requires quick wit and a fluency with words – two of the three elements which Rheingold suggests are fundamental elements of communication in online communities. Rapidity of response (quick wit) is necessary to keep the conversations rolling along. Conversations in IRC move fast because there are many participants who may contribute at any time. Therefore, users who have something to say must say it fast or it will become out of date. This relentless pace will need to be slowed down for role-playing in Ghostwriter because the children’s typing inexperience may hold them back and it might be demoralising to keep missing out on chances to contribute.

IRC communities are also built through replacing physical, social and contextual cues with words alone and this requires users to use words fluently. In IRC and other purely text based communication media, participants do not share a physical setting; and they cannot pick up emotions or meaning from body language, tone of voice or facial expressions. Non-verbal channels for communication are missing. What is interesting is that IRC participants learnt to reconstruct social context with words alone. They develop conventions for describing physical actions, facial expressions and tones of voice to supplement the dialogue. This is usually known as “emoting” because the command for describing an action in some online communities is called “emote”. Examples of these meta-descriptions are:

Judy sighs wearily and rubs her eyes.

Judy says “Will I never finish this?”

This technique of explicitly emoting with text descriptions is not used in Ghostwriter. One reason for this was that Ghostwriter is a graphical environment with avatars; each user has a physical presence. It would be odd to see avatars with bodies and faces yet read descriptions of changes in their appearance. A solution would be to supply users with the facility to select a facial expression for their avatar and change the avatar’s expression accordingly. This is technically difficult and was outwith the scope of this project. However, as discussed in Chapter Seven, such a facility might encourage the role-players to think about the emotions of their characters. Some of the Ghostwriter characters express emotions through body language and tone of voice, but this was restricted to the characters controlled by the role-play leader for a number of reasons discussed in Chapter Five.

The third element required to create a sense of community online is the concept of stable identities. Although users can assume artificial identities they should at least be consistent from day to day, otherwise it will be impossible for people to form relationships. The concept of assuming identities, of pretending to be someone else while online is central to the study of computer-mediated communication. According to Rheingold, “The grammar of CMC media involves a syntax of identity play: new identities, false identities, multiple identities, exploratory identities, are available in

different manifestations of the medium” (Rheingold, 1993, Chapter Five, p. 3). The lack of physical presence allows users to construct and portray the personality they have always wanted, or secretly wished for, or think will attract the object of their affections. Turkle (1995) discusses cases of online gender bending and other experimentation with self identity conducted by MUD and IRC users.

MUDs (Multi User Dungeons) are text based, online role-play environments where users co-construct imaginary universes from words. Users write descriptions of their section of the imaginary world and share these descriptions with the other users. The MUD world consists of vast numbers of these descriptions which users can use commands to traverse. They also describe the appearance of their characters and role-play with other MUD-ers by typing messages. Two of the main differences between MUD and IRC are that MUD users use an elaborate textual representation of a fantasy environment; and that there is often a strong element of narrative in MUDs whereas IRC tends to be more discussion based. It is worth noting that although MUD-ers role-play in stories, their enjoyment typically comes from playing character roles rather than producing a coherent plot. Players do not have a global dramatic structure in mind; their perspective is limited to one character’s goals (Young, 1996). Role playing games (RPGs), which can be pen-and-paper based or computer-based, maintain a more coherent storyline because there is a dungeon master who has an idea of the plot that he wishes to unfold and leads the role-players towards resolution through various plot points. Characters in MUDs may be purely fictional and MUD-ers invest a great deal of time in creating and improving their characters over multiple adventures. It is considered to be a great personal loss if one’s MUD persona dies; hardened MUD-ers state that it is almost equivalent to part of oneself dying, leaving an emptiness behind (Rheingold, 1993).

There is some concern that participation in online communities can be addictive. Bruckman (1992) examines this issue. She found evidence that some people spend so much time in their virtual lives that their real lives begin to suffer. Some MUD-ers feel that their relationships online are more satisfying than their real life relationships. The typical personality profile of a MUD-er is of a young, single male who has social difficulties and enjoys the success of mastering technically difficult

problems while using the MUD. The relatively low cost of failing in online social relationships is perhaps encouraging to MUD-ers because they can always start again with a new character. While the idea that young people may be effectively dropping out of real society to create lives for themselves in virtual communities is disturbing it does have a positive aspect. Bruckman (1992) gives the example of a couple who met on a MUD and after meeting in real life, relocated to live closer to each other. MUDs can be viewed as a safe environment for people who find it difficult to make friends and start romances in real life until they have enough confidence from their virtual experience (Griffiths, 1998, Gunter, 1998). They may also be viewed in a positive light as places where the ability to use words creatively is more important than physical appearance (Griffiths, 1998), race, gender or cultural background (Rheingold, 1993).

4.3.1.2 Habitat

An illustrative example of a massive online community is Lucasfilm's Habitat (Morningstar and Farmer, 1990). This was a commercial environment for computer supported co-operative play developed in the early 1980s. Habitat was a simple 2D graphical world in which players could interact with each other by typing messages and executing commands to carry out actions and to pick up objects. While the players could not create their own sections of the world as in MUDs, the system administrators acted as facilitators and implemented new features if the community requested them. In the simulated world of Habitat, tens of thousands of players created a society from the bottom up. The world started out with no social rules, and no government. It evolved into a state where players can "communicate, play games, go on adventures, fall in love, get married, get divorced, start businesses, found religions, wage wars, protest against them and experiment with self government" (Morningstar and Farmer, 1990, p. 1). This demonstrates Rheingold's point that people re-construct social context in online communities to mimic the social structures and cues which exist in real life. Clearly the users of Habitat experienced social presence frequently.

Further evidence that computer-mediated communication can facilitate empathic relationships comes from (Preece, 1998). She analysed the interactions between members of an online bulletin board which was started to provide mutual support to sufferers of a particular medical condition. The members used the community primarily as a means to seek other sufferers' experiences, advice and encouragement to help them through different stages of the medical problem. They sought empathy more often than factual information. Preece writes that "The tone of the messages suggest a sense of equality and trust within the group. Communication between members is helpful, empathic, often altruistic and sometime cathartic. People want to share their experiences, learn from others and support each other." (Preece, 1998, p3).

Interactions in online communities such as IRC, MUDs and bulletin boards show that people can create societies, become emotionally involved and form deep relationships in virtual worlds through text based communication alone. This is extremely important evidence that virtual worlds can be a good medium for role-play. It shows that social presence and self presence can be evoked through typed communication in the absence of other social cues.

4.3.1.3 MOOSE Crossing and other educational CMC environments

The MOOSE Crossing project (Bruckman, 1997; Bruckman and DeBonte, 1997) has some features in common with Ghostwriter. MOOSE Crossing is a text-based virtual reality environment designed as a place for children to learn to program, and to practice reading and creative writing. It is a collaborative, constructionist online community populated by a few adults and many children in different geographical locations. The technology is based on MUDs (multi-user dungeons) and MOOs (MUDs object-oriented) but it has been specifically designed to make it easy for children to program. The children can build virtual rooms and objects and create new personas for themselves. This requires them to use a mixture of programming and creative writing skills. The examples in (Bruckman, 1997) demonstrate that the children's descriptions in MOOSE crossing can be imaginative and well written. Bruckman's work claims that the constructionist and the collaborative aspects of

MOOSE Crossing reinforce each other. Constructionist learning takes place when the learner constructs knowledge for herself by building something external such as a computer program or a sandcastle. An example of a constructionist activity in MOOSE Crossing is when a child builds swimming pool by writing descriptions of it in a computer program. The child is not told how to write the program by a teacher; he must figure out how to do it based on similar programs and his prior knowledge of MOOSE commands. The text-based swimming pool is a virtual object in which he makes his understanding of certain programming concepts explicit. His misconceptions may become clear to him when they result in a bug-ridden swimming pool. The children collaborate to: jointly create areas of MOOSE Crossing; give feedback on each other's creations; adapt and expand on each other's work; share knowledge and help each other. Some adults also provide assistance online, and in some cases face to face in a computer lab. The adults seem to model themselves on the role of "expert peer" rather than "teacher"; they help the children in a friendly way and share programs with them in a similar fashion to the more experienced children. Bruckman's claim is that on the one hand, working collaboratively helps the children to build new virtual rooms and objects and on the other hand that working together on building virtual places helps to reinforce a sense of community and collaboration.

The Ghostwriter project does not focus on constructionist learning because of the complexity of the task of creating 3D virtual environments (see discussion in section 4.4.2.6). However, the insights gained from the collaborative aspects of MOOSE Crossing show that children can collaborate effectively in online virtual environments; a necessary precondition for virtual role-playing. Firstly, the interaction in MOOSE Crossing is purely text-based. The children communicate with each other by typing messages, something they seem to enjoy. They play together in virtual objects by typing to each other and it is clear that they make friends with each other without meeting face to face. This suggests that children can form relationships through synchronous typed communication and that a text-based improvisation style of role-playing could be effective.

Secondly, the MOOSE Crossing children assumed different personas while online – they could switch between different characters for whom they had written different descriptions. Bruckman noted that the descriptions the children wrote of themselves changed as their confidence changed: “ Despite the fact that the children rarely explicitly role-play, the way a child (or adult) chooses to describe himself is still a window onto that child’s sense of self.” (Bruckman, 1997, p. 16). The children could create fantastic or funny characters and through these characters they could safely express themselves. Often the alternate personas behaved in a similar way to the child who created them; the children talked about their real world concerns while “dressed up” as their virtual personas. Creating and switching between personas suggests that the children were playing with their concepts of self. Turkle (1995) discusses how adults explore personal identity and gender roles through role-playing in computer-mediated communities. Their anonymous nature and the geographical separation of the participants makes online communities particularly safe places to experiment in this way. computer-mediated communication also has the effect of lowering inhibitions (Rheingold, 1993; Kiesler, Siegel and McGuire; 1984), suggesting that shy children will find it easier to role-play in the virtual environment than in real life.

Lastly, the effectiveness of online peer-peer learning in the MOOSE Crossing project presents a solution to one problem with the Ghostwriter project. For research purposes, the role-play leader was an adult but this is infeasible in normal classroom situations. It is unlikely that a class teacher could spare time to role-play with a pair of children. Adopting a MOOSE Crossing interaction style, where participants are in different places, there are a few volunteer adults and the children tutor each other, may solve this problem. Older or more experienced role-players could work as the role-play leader after a period of suitable training.

MOOs have also been used to teach older students how to write scripts for plays. Blake (2000) describes a MOO-based course for helping students on a film course to write high quality screen plays. Miller (1993) used text-based computer-mediated communication in his creative writing classes for high school and first year college students. He first adapted his normal classroom drill and practice exercises for use on

the computer network, but he found that the students' tendency to "flame" while using the network detracted from the effectiveness of these exercises. "Flaming" is "the practice of expressing oneself more strongly on the computer than one would in other communication settings" (Kiesler, Siegel and McGuire, 1984; p. 1130). Miller (1993) also refers to gossip, vulgarities and wise-crack and other forms of communication inappropriate to the classroom setting as forms of flaming. However, he saw flaming as a potentially powerful creative resource. The quick wit and verbal audacity required for the more creative types of flaming could be harnessed for imaginative collaborative writing. He then organized some collaborative text-based, computer-mediated script writing sessions for his students, in which they improvised the part of a character in a pre-defined scenario, such as the story of Little Red Riding Hood. These role-play sessions were more successful than the drill and practice exercises:

"The fundamental and primary value in the script writing approach is that it taps the magic, the enchantment inherent in computer-mediated communication. It draws upon and encourages ways that humans seem naturally driven to communicate on the system. It allows for and stimulates a fascination in playing with words to express feelings and emotions. It allows students to experiment with guises, with personas, and to explore parts of themselves that they may not normally reveal in everyday face-to-face discourse. It allows for students to become other characters in an elaborate and spontaneous act of imagination."

(Miller, 1993; p. 135).

Although Miller's students were older than the target age group for the Ghostwriter project, his success at teaching creative writing skills through computer-mediated role-play suggests that the similar approach of Ghostwriter could be beneficial.

4.3.1.4 Summary

This section explored the types of interactions which take place in text-based virtual environments. Members of online communities experience social presence to a high degree and may experiment with self presence by exploring identity. This supports the hypothesis that the text-based style of communication in Ghostwriter is a suitable medium for role-play.

4.4 Software to assist children in creating narratives

This section explores previous and ongoing research into software designed to help children create, write and tell stories. It has a particular focus on virtual environments and software designed to support collaborative story making. Software which is designed to help children see the perspective of other people is included, as are multi media story preparation programs. Although there has been much research into the effects of using a word processor as a tool to aid the writing process (for a review see Bangert-Drowns, 1993), and research into intelligent tutoring systems designed to offer expert advice during composition (e.g. Wiemer-Hastings, 2000), they are not considered here because Ghostwriter is a story preparation environment rather than a composition tool.

Section 4.4.1 “Story support software” discusses traditional educational software designed to help children create stories. “Traditional” refers to software with standard WIMP (windows, icons, menus and pointer) interfaces. Virtual environments and other novel hardware and software systems for story making are discussed in Section 4.4.2 “Puppets and toys”.

A recurring theme in this section is the question of how best to support peer-peer collaboration in story software. Ghostwriter relies on a human expert role-player while some previous work deliberately avoided adult intervention in story making software for young children. This issue is discussed in Section 4.4.2.6, along with a debate about adult designed content in children’s software.

4.4.1 Story support software

This section describes educational software with standard user interfaces which are designed to help children with story creations tasks. The programs discussed in this section vary in the facet of story creation they are designed to support. NIMIS and Bubble Dialogues are designed to help children take the perspective of multiple characters in cartoon style stories, while IV Storybase and the Klumps are designed as preparation activities for story writing by giving young writers inspiration and

ideas to work with. KidPad and Agent stories are both designed to help authors structure the plots of stories.

4.4.1.1 Cartoon style software – NIMIS and Bubble Dialogue

The section begins by relating recent software designed to help children create cartoon strip stories with thought and speech bubbles. This work suggests that the use of speech and thought bubbles can help children to take the perspective of several characters.

The NIMIS (Networked Interactive Media in Schools) project is investigating software to assist young children (between 5 and 7 years) with story writing and the more general social, cognitive and emotional effects of the integration of networked technology into the classroom. The software is used in the context of a networked classroom where children work daily with computers using touch screen technology. T'riffic Tales (Brna and Cooper, 2000), developed at Leeds University, is a cartoon creation program. Another part of the NIMIS project, conducted at INESC, Lisbon, is Teatrix, a 3D virtual role-playing environment (Machado and Paiva, 1999). Teatrix is described in Section 4.4.2.7. In T'riffic Tales the children can create cartoon style stories across several frames by selecting pictures and words from the interface. Some of the words from this word bank were drawn from the National Curriculum for English Language and can be augmented by the teacher. There are also descriptive words to match the pictures and describe the characters' feelings. The children can also use speech and thought bubbles to give their character's views on the story. In addition to the word bank suggestions, the users can type their own words and draw their own pictures. There are also a number of suggestions to help the children think of story ideas – story titles; story starters; story events; story stirrers and story endings. Users can collaborate at the same computer or across the network to share stories, pictures and cartoon frames. The effect of the software on the children's stories was established using the story assessment scheme described in Chapter Three. Preliminary analysis of the use of the cartooning software features suggested that the word banks and speech and thought bubbles were helpful to some children as they produced their stories. The way the children used speech and

thought bubbles is relevant to the role-playing aspect of the Ghostwriter project. The bubbles were generally used to add extra information to the story, often in the form of a character's opinion or feeling about the story events. This had the effect of improving the characterization in the stories.

The Bubble Dialogue project (McMahon et al., 1991) also explored the use of speech and thought bubbles to help children switch perspectives in cartoon like stories. There are two modes in the Bubble Dialogue software – creation mode where children create cartoon strips with speech and thought bubbles for the characters, and review mode where they can reflect on and annotate previous cartoons either created by themselves or by other pupils. In creation mode two children can create a dialogue between cartoon characters by filling in thought and speech bubbles. The thought bubbles are private to the user who created them, but the speech bubbles can be read by both users. Articulating the discrepancy between what one is thinking and what it is acceptable to say out loud is an important step in learning to work constructively with others. Switching characters and writing down their thoughts explicitly requires the children to imagine circumstances from another point of view. This has implications for therapy as well as education. Reviewing previous bubble dialogues can help the pupils to think of alternative, perhaps more positive, comments in particular situations. (McMahon et al. 1991) found that children enjoyed using Bubble Dialogues and children as young as eight could master the notions of switching between public and private dialogues and multiple perspectives. There are number of parallels between this research and the Ghostwriter project. Firstly, McMahon et al. state that “The Bubble dialogue tool acts as a bridge from conversation to text. It exploits the competence in oracy, the natural language of children, and moves them, easily and imperceptibly into the exploration of different aspects of language” (McMahon et al., 1991, p. 9). This is the notion that writing dialogue for characters with the help of a conversational respondent can help children to adapt strategies from spoken language for use on written language (see discussion in Chapter Two). The interactive, text based improvisation in Ghostwriter is similar in this respect. Furthermore, the examples given by the Bubble Dialogue researchers show that their software can help children to see things from the point of

view of others and can use this knowledge to suggest how they might behave differently in the future. The success of this collaborative, computer-mediated form of role-play suggests that the Ghostwriter virtual role-playing activity will be fruitful.

4.4.1.2 KidStory

Benford et al. (2000) describe two pieces of software which were designed as part of the KidStory project to support collaborative storytelling between young children. The first of these is KidPad, a drawing program which has been augmented to help children move between different parts of their stories. The interface allows the children to link between different scenes in a story and zoom in depth to a particular scene. The researchers claim that “The story representations might make salient the links between scenes and the overall structure of the story” (Benford et al., 2000, p. 2). The second piece of software is The Klumps, a 3D modelling tool which enables children to try out ideas for possible story characters or props in the same way as they might play with modelling clay for inspiration. No evaluation of effectiveness of the narrative aspect of the software is reported; there is a focus on supporting collaborative interactions.

4.4.1.3 IV Storybase

McLeod (1992) describes an extremely successful piece of story writing software (IV Storybase) which was developed in Grampian Regional Council. There are three main ideas behind the program: to transform writing from a dull exercise to an exciting, rewarding activity; to help children create stories which go beyond their own social and emotional experience; and to help children generate interesting plots for stories.

IV Storybase is a database of text descriptions of people, places, and objects, along with graphics and animations of these scenes. The program randomly selects an individual story assignment for each pupil from this database by combining the characters and settings and props. The idea was that interesting stories can result from the combination of the raw ingredients in the story assignment. The variety of

characters and settings in the data base were designed to encourage the children to write about a broader range of topics than they would normally tackle.

The software was tested extensively in primary schools in the Aberdeen area. The program was a success from several points of view. Perhaps most importantly, the pupils greatly enjoyed using it, and were eager to further develop their writing skills to incorporate features like suspense and good characterisation into their stories.

The following lessons can be learned from IV Storybase: software which combines various text and multimedia “snapshots” to stimulate children's imaginations can produce high quality imaginative writing with original story lines; and children enjoy and can benefit from sharing their work with others, during the process of writing itself and through the publication of their own and other pupils' stories. This supports the hypothesis that a multimedia computer based preparation activity can be motivating for children and can encourage them to produce high quality stories.

4.4.1.4 Agent Stories

The tools we have discussed so far in this section are for helping users to write linear stories. A software package called Agent Stories (Brooks, 1999) is designed to help people create meta-linear narratives. The term “meta-linear” refers to a narrative which is composed of small related story segments which have been designed to be arranged in different ways. Instead of reading the story from start to finish, the reader can take many different paths through the story segments and in doing so can arrive at many different interpretations of the story. Meta-linear narrative is particularly suited to telling the same plot from multiple perspectives. Brook’s example is the story of Red Riding Hood; when told as a meta linear narrative, the wolf, the grandmother, the mother, Red Riding Hood and even the forest itself would have a voice and a point of view on the events. The Agent Stories software helps the author to keep track of the highly complex structure of the narrative and can offer suggestions on suitable story sequences. Writing a meta linear narrative with multiple points of view could encourage children to see events from many different perspectives and consider the effects the events have on different characters. This is similar to role-playing the same scene, playing a different character each time. Using

virtual role-playing as a preparation for writing meta linear narratives might be a fruitful approach, but it is outwith the scope of this project.

4.4.1.5 Summary

NIMIS, Bubble Dialogue and Agent Stories all combine aspects of role-playing with story writing. The role-playing activity in Ghostwriter is a more direct, first person experience than in interfaces where users create speech and text bubbles for a drawing of a character. In Ghostwriter, the user communicates as though he were his character. He literally sees the world from his character's perspective; he cannot see what his character looks like unless he looks in a mirror. In the cartoon style stories the user does not place himself in the story character's shoes so explicitly. In Agent Stories, the user role-plays several characters in turn, but it is a single author experience; the user does not interact with other role-players. It is likely that Ghostwriter users will experience presence of self more often than users of the other systems and this may help them to empathise with their character.

IV Storybase is designed to stimulate young writer's imaginations using multimedia images, while the Klumps are designed to encourage children to think of ideas using virtual modeling clay. Ghostwriter is designed to evoke perceptual presence through interaction in a virtual world created with high quality graphics and sounds. It is likely to be closer to a real experience than viewing IV Storybase or playing with a chunky piece of virtual clay. For this reason it may be a better way of helping children who find it difficult to imagine stories visualize the adventure. Children with more developed imaginations may prefer the freedom of the virtual clay.

4.4.2 Puppets and Toys

This section explores novel computer systems which have been designed to help children with collaborative story making activities. These include "computationally augmented physical artifacts" (toys which can be connected to computers); desktop virtual environments and fully immersive virtual environments. Once again, these projects vary in their educational goals and assumptions. Projects conducted at the MIT Gesture and Narrative Language group have a strong emphasis on child

centered technology where children interact with their peers supported by technology rather than by adults and consume content produced by other children rather than by adults. This is not the approach taken in Ghostwriter, as discussed in Section 4.4.2.6.

4.4.2.1 SAGE

The SAGE project (Umaschi, 1996) aims to help users understand their own life experiences better by telling stories. An important feature of this project is that it encourages people to make explicit their notions of what makes a good listener. Users can either create a character who will respond with stories and advice for future users, or interact with a wise character who was created previously. Two examples of wise listeners are given in (Umaschi, 1996) – the rabbi and the Taoist philosopher. When the user presents a personal story or problem, the software behind these characters performs key word matching between the user's input and a database of traditional stories suited to the character's background. The character responds with a story which has some relation to the user's, some characteristic phrases to make it seem more believable (e.g. "Shalom") and then leaves the user to draw his own conclusion about the connection between the "advice" and his story. This approach relies on the Eliza technique of exploiting the human habit of attributing meaning to utterances. The user will try to make sense of the wise character's advice in the context of his own problem and will presumably attribute wisdom where there is none. There is a risk that children might interpret an unhelpful message from the "advice". The user can also program his own SAGE characters for other people to interact with, and in doing so he must reflect on the attributes he seeks in a listener. In SAGE, the software plays the role of a more experienced counsellor who offers advice to the children. However, the more experienced counsellor may have been created by a child in the first place. This is a form of collaboration and role-play where the collaborators are separated by time.

4.4.2.2 Rosebud

In the Rosebud project (Glos, 1997), children create stories about their soft toys, type them out, collect them and share them with their friends. The novel aspect of this approach to story creation is that the soft toys can connect to the computer with

an infra red link, forming a three way interaction between the child, the computer and the toy. The children type out stories about the toys at the computer. The computer assists in the revision process, prompting and encouraging the child to write more, edit and expand her story. Recordings of the stories are stored in the soft toys and can be played back later; by lending a friend a toy, the children can swap stories. Eventually the child will have collected a “scrap book” of stories in which her toy is the hero. The advantage of using a friendly soft toy interface for the story support software is that it exploits the emotional bond which exists between the child and her toy – children are used to telling stories to and about their favourite toys. The toy and the computer system begin to take on the role of play mates of the children: “... the bond between stuffed animal and child is particularly supported by the peer nature of the voice of the computer system which encourages and scaffolds the child’s participation, but never suggests content or specific revisions” (Cassell and Ryokai, 1999, p. 7).

4.4.2.3 PETS

A similar project, but one where the storytelling soft toys can be designed by the children, is the PETS project at the University of Maryland (Druin, et al., 2000). Children can create weird and wonderful furry and feathery robotic PETS by clipping together a selection of robot body parts. These PETS can express simple emotions such as happiness, sadness and anger. Once the child user has written a story using the “My PETS” software, including explicitly mentioning the emotions of the story characters, her robot PET can act out the story and express the appropriate emotions. Both the robotic body parts and the software were designed collaboratively between children and adults. The emphasis on explicitly stating emotion in the stories makes a PET particularly suitable for therapeutic purposes (Plaisant et al., 2000). The researchers have worked in conjunction with physical and emotional therapists to adapt the PETS for pediatric rehabilitation. The use of PETS in role-playing and acting out stories in sessions between therapists and children with emotional difficulties is particularly interesting. Using computing technology to help children role-play in conjunction with sensitive adults seems a more suitable approach than allowing children to draw their own interpretations from the advice of

a SAGE character. Similarly, human-led role-play in the Ghostwriter virtual environment seems more appropriate than role-play with computer controlled characters at this time (see Section 4.5.1.1).

4.4.2.4 StoryMat

The idea that a computer system can collaborate with children as a kind of playmate is central to the StoryMat project at MIT (Cassell and Ryokai, 1999). Drawing on studies which indicate that children engage in fantasy play in a more complex way when adults are not present, the researchers hypothesised that collaborative story making could be well supported by a computer system which does not take the role of an adult. StoryMat's contributions to the stories are intended to resemble those of a peer. To put it another way, StoryMat facilitates interactions between a child and his peers over time, by incorporating previous stories into current stories.

A child or a pair of children play with soft toys on a cotton mat which is digitally enhanced to track the toys' positions on the mat. The mat is decorated with embroidered houses, paths, trees and other shapes. As they work, their voices and the movements of the toys are stored. When the child moves the toy to an area of the mat, StoryMat can retrieve a similar story created by another child previously in which that toy went to that location. A voice recording and a projection of the toy's movements over the mat in the previous story are displayed to the child, who can choose to continue his story, incorporate elements of the previous story into his story, or take up from where the previous story left off. In a study of thirty-six users which compared the stories and interactions generated by children using StoryMat and a visually similar but non-interactive mat (the passive mat), the researchers found that StoryMat not only encouraged more sophisticated fantasy play with narrative qualities, but that it also appeared to encourage more effective collaboration between pairs of children.

The researchers used several indicators to measure the narrative complexity of the stories produced in the different conditions: the use of narrative openers such as "One day"; incorporation of the elements of another story into the current story; switches between narrator, character and stage manager. Children who worked with

StoryMat created stories with greater narrative complexity as indicated by these measures. The stories from the passive mat conditions were more similar to fantasy play than structured stories.

When a single child interacted with StoryMat, the turn taking and patterns of dialogue were similar to those of a pair of children on the passive mat. That is, StoryMat's story recall feature enables it to respond to a child in a similar way to her peers. Analysis of the interactions between a pair of children on the StoryMat showed that the children were more inclined to prompt each other, offer suggestions and give opportunities for their partners to contribute than in the passive mat condition. This suggests that the presence of StoryMat encourages children to collaborate on the process of storytelling as well as the content on the story.

4.4.2.5 Improvisational Puppets

The Improvisational Puppets project at Stanford University also investigated the sorts of interaction children engage in when using a collaborative playcrafting program (Duran-Huard and Hayes-Roth 1996). In this study, the researchers analysed the interactions between mother-and-pre-school children pairs; school children pairs; pre-school children pairs; and pre-school-and-school children pairs. In the Improvisational Puppets software, users control simple graphical Puppets on screen. Two users can direct their Puppets together to create a story. The Puppets (Nora and Aaron) live in a virtual playground. They have simple emotions and energy states such as happiness, sadness and tiredness. The software can generate behaviours for the Puppets based on their emotional and energy states, but the user can also direct the Puppets by over-riding the software's suggestions. In the interactions between the pre-schoolers and older playmates, the researchers noticed that the mothers and older children were assuming the role of an expert. However, the teaching styles of the mothers and the school age children were different. The mothers were inclined to guide the pre-schoolers by making suggestions and giving demonstrations while the school children were inclined to tell their younger peers what to do, or to seize the mouse and do it for them. The interactions between school children were more balanced; neither partner assumed control and they responded to

each other both in conversation and in on-screen collaboration. The pre-schoolers collaborated with each other mostly on-screen, that is they did not talk to each other much but they created a story between them using the software. They were responding to the actions of each other's characters. The results of this study demonstrate that the nature of peer-peer interactions and older playmate-younger playmate interactions are different and that the teaching styles used by the older playmates vary. This suggests that different sorts of computer assisted collaboration are suitable at different stages in the learner's development. For example, interactions with an expert with a "guidance" approach to teaching may be helpful to the learner when he or she first encounters the software. The level of adult participation in Ghostwriter is discussed below.

4.4.2.6 Children as authors of virtual stories?

Like the StoryMat and Rosebud projects, the Ghostwriter project aims to use technology to mediate story making collaboration between children. Successful role-playing requires creative fantasy play with an element of narrative and effective collaboration between peers. However there are differences over the nature of adult participation in these projects. The Gesture and Narrative Language group have an agenda of child centered technology - "There is a need for technologies that *listen* to children, reflecting the children's own creations rather than providing adult-produced content" (Cassell and Ryokai, 1999; p1). This principle is not observed in the Ghostwriter project, for two main reasons.

At a pragmatic level, a version of Ghostwriter in which the children could create the settings and characters for their own role-playing adventures is beyond the scope of this project. The interface design problems inherent in designing a virtual role-play authoring environment suitable for children are currently huge. Designing worlds and scripting behaviours for the characters within these worlds is a complex task which usually takes trained adults a matter of months or years. StoryRooms, an ambitious project at The Human-Computer Interaction Lab at the University of Maryland, is investigating a story authoring environment (Alborzi et al., 2000). This project is investigating how to design room-sized interactive story authoring environments for

children. They envisage an interactive storymaking kit, similar to robotic kits for children such as Lego Mind Storms, which provides children with hardware, software and some examples and ideas for stories. The hardware will consist of a variety of sensors and actuators which can be attached to everyday toys and furniture. These augmented everyday objects or props will be available for inclusion in the story once they are registered with the storytelling software. Children will create their stories by storyboarding the interactions using cartoon style software. A list of potential props and example stories will also be included to help children get started. There is major design effort devoted to creating a visual programming language for stories which is suitable for children. This design effort is characterised by extensive consultation with the children who are part of the design team. Both the results of this project, and the child centred design methodology would be useful in extending Ghostwriter to become a virtual role-play scenario authoring environment. A recent commercial interactive story telling kit based on the computer game “Vampire: The Masquerade – Redemption” also has potential – see Section 4.5.2.7.

There is also an argument that an adult’s imagination produces content which is enjoyable for children, and more sophisticated than content produced by children. Although the idea that children should be freed from the ideas that adults impose on them is attractive in some ways, it does not acknowledge that adults are often more skilled than children at producing enjoyable, coherent narratives. That this is so explains why there is an effort to help children create stories in the first place. After all, we would not expect children to forgo books by adult authors in favour of reading their friends’ stories. Furthermore, in designing a scenario for story drama, the adult leader also must balance narrative structure with a number of educational constraints to produce the material for a thought provoking role-play session where learning can take place. This is an additional skill which would need to be taught before learners could successfully author a virtual role-playing environment. In Ghostwriter, the role-players are both consumers of the plot episodes pre-designed by an adult, and creators of the dialogue between characters.

Another difference between the StoryMat project and Ghostwriter is that the effectiveness of the role-playing in Ghostwriter is likely to be closely related to the

quality of the adult participation. Rather than emulating only peer-peer interactions as in StoryMat, Ghostwriter must facilitate interactions between an adult and learners. The adult role-play leader helps the role-players to go beyond their normal perspective and think about the scenario from the point of view of other people. Role-playing activities are often used to encourage children to move beyond habitual interaction patterns with their peers. In this case the presence of an adult (or an older child) is necessary to break pre-existing patterns. However, this does not mean that the adult should assume the *role* of an adult and act as a teacher or parent. As discussed in the previous chapter, role-play leaders move between roles which present the role-players with conflicts which may help them to see matters in a new light. The anonymity of computer-mediated role-play has the advantage that the role-players may not recognise that a character is played by an adult. The adult can pose as a peer if necessary while facilitating effective role-play.

4.4.2.7 Teatrix

An example of a virtual role-playing environment where the software assumes the role of an adult teacher is Teatrix, currently in development as part of the NIMIS project in Lisbon and PhD work at the University of Leeds (Machado and Paiva, 1999; Machado, Martinho, and Paiva, 1999). Teatrix is designed to assist seven to nine year olds with story creation through role-play. In the Teatrix software the children can select from a list of characters and then control that character in a cartoon style 3D world by selecting from a possible set of actions such as talking, walking, using an object, giving an object to a character, hitting a character. There is a very strong notion of role within this system, derived from Propp's analysis of Russian folk tales. According to this analysis, all stories contain a subset of a set of common roles or characters. There are also thirty-one functions which these characters might perform, resulting in the story structure. For example in Teatrix, a child could choose to be a hero, a villain, or a helper, or a false hero. These characters have goals e.g. the hero might want to find an object, or win a reward. The corresponding functions would be departing on a search, or gaining the reward. The software analyses the functions carried out by this character and his emotional state against the appropriate theoretical function and provides feedback to the child. If a

character has not met the goals dictated by his role, after a time the software suggests an action which would put him back on track. Emotional conflicts can result when the child indicates that his character feels unhappy about his previous behaviour (although it is not clear how the child indicates this). This may cause the goals of the character to be re-evaluated by the system. The problem with this approach to supporting *improvisational* role-play is that it sits uneasily with one of the aims of role-play: challenging stereotypes through exploring different aspects of a character. Instead of accepting that the “villain” is purely evil, or the “hero” is perfect, through role-playing one can discover the shades of grey in between. A role-play leader can take advantage of situations where the role players move beyond stereotypes, even if this means that the outcome of the story will change. Feedback from the teacher on playing a character according to role while rehearsing a dramatic *performance* would be more appropriate.

4.4.2.8 POGO

The POGO project (Rizzo and Saudelli, 1999) proposes two ideas for a virtual environment where children can create stories with each other. They evaluate these ideas via comments from teachers and against a theory derived from cultural psychology (Bruner, 1990; Vygotsky, 1978). The first idea, “TheatReality”, is a tool to help children express emotions in stories by emphasising the voice and facial expressions of the children who are telling the stories. The researchers suggest the idea that a user can express anger in the story by selecting a button in the interface labelled “angry face”. The child’s own face would then be projected onto the screen with an angry expression. Teachers who evaluated this idea approved of it, saying “The more children can modify themselves, the more they can identify with the embodied characters.” (Rizzo and Saudelli, 1999, p39). The second idea is “Redrum” and is focused on children’s interactions with virtual friends within the virtual environment. The virtual friends will be created by the children themselves because the researchers believe it is ill advised for children to develop their “mind theories” through interacting with computer controlled characters. The teachers suggested that a virtual friend created by the child could act as another ego, an “inner mirror” and would serve as a tool for exploring inner thoughts and feelings.

The four pedagogical objectives of POGO are concerned with: the relationship between reality and imagination; the development of emotional knowledge; the process of creative imagination; and co-operation. The first objective is rooted in Vygotskyian principles and it requires that virtual environments should help children to think imaginatively by providing a rich sensory experience because fantasy is derived from the richness of previous experiences. The second objective is to help children develop empathy through emotional interactions in fantasy experiences. This is derived from the Vygotskyian view that feelings evoked through fantasy are real emotional experiences. The third objective is to help children in the process of playing with objects which exist in the real world but which also have a place in their fantasies (this is related to the constructionist claims of MOOSE Crossing discussed in Section 4.3.2). The fourth objective is derived from Bruner's notions of intersubjectivity, and it requires that virtual environments should help children to build fantasy worlds through discussion with other children.

Three of these pedagogical goals for virtual environments are met in the Ghostwriter project. The objective of providing a rich sensory experience on which children can base imaginative play is met through the visually appealing ruined castle setting, as described in Chapter Five. The objective of helping children to co-operate with each other to build fantasy worlds is met by the role-play activity in Ghostwriter. Thirdly, the objective of aiding children's emotional development in a virtual world is met by the drama activity in the Ghostwriter project (see Section 2.3). As all the Ghostwriter interactions take place in a virtual world, the POGO goal of helping children to integrate real objects into fantasy play is irrelevant.

4.4.2.9 Virtual Puppet Theatre

Another example of an interactive virtual puppet program is the Virtual Puppet Theatre, an I3 funded project. This project is intended to support the development of young children's cognitive skills (Klesen et al., 2000; Andre et al., 2000). The Virtual Puppet Theatre is a 3D virtual environment where a child can control a character in a drama and interact with other characters controlled by autonomous agents. The claim is that children can learn facts about the story domain; learn how

to decentre and empathise with others; and learn how form creates meaning in fiction. Evaluation of their first improvisational scenario is currently underway. This scenario, *Black Sheep*, is a classic battle between good and evil in the farmyard. The antagonist is a miscreant black sheep, and the protagonist is the long suffering farmer. The user can interact with these characters by helping the baddies or the goodies. The user can also direct the emotional states, actions and utterances of the Puppets. The researchers believe that switching between the role of an actor, audience and director will help children to “gain a basic understanding of how different emotional states and personality profiles influence a character’s behaviour and how physical and verbal actions in social interaction can induce emotions in others.” (Andre et al., 2000, p3). The Virtual Puppet Theatre is similar to the role-playing activity in *Ghostwriter*, although the users interact with computer controlled characters rather than each other. The story emerges from the conflicts between the desires of the autonomous agent characters; a story was not designed into it. A design problem for *Ghostwriter* is how to design a story for the role-play which is flexible enough to respond to the role-players’ choices. This question is further addressed in Section 4.5.

4.4.2.10 The NICE Project

NICE (Narrative, Immersive, Constructionist/Collaborative Environment) is an immersive virtual reality environment where children create and learn about simple ecosystems, and make stories from the interactions with each other and the inhabitants of the world (Roussos et al., 1997). It is designed to run in a CAVE, a room-sized virtual reality system in which users view high resolution stereoscopic images on 3 walls using stereo glasses. The NICE world has cartoon style, blocky graphics, but the same display technology could be used with more sophisticated graphics. One user can navigate through the world and manipulate objects with an input device called a wand. Several users can be in the CAVE at one time, and multiple CAVEs can be networked together. Thus, the user can interact with groups of friends physically and remotely. The world itself is a garden where the children can care for plants and experience changes in an ecosystem first hand. Very simple stories are generated from actions in the world, but these seem to be plot-less; a

string of events which are not linked together to form a coherent storyline. The NICE project is interesting because of the potential of fully immersive hardware such as the CAVE. As discussed in the section on presence (Section 4.2), the quality of the user's experience in a virtual world can be heightened with by increasing perceptual realism i.e. by creating the illusion that the virtual world is not mediated. It would be interesting to compare interactions in versions of Ghostwriter running on a desktop PC and on an immersive system.

4.4.2.11 Summary

This section described some hardware and software systems designed to help children collaboratively create stories. The issues of using adult facilitators to support peer-peer collaboration and exposing children to adult produced content have been discussed.

There are various current projects researching the use of 3D virtual environments to support collaborative story creation between children. Teatrix and the Virtual Puppet Theatre provide simple 3D worlds for children to interact in. However, the simplicity of the scenes, objects and characters in these worlds are less likely to evoke perceptual presence than the Ghostwriter world, due to the sophisticated graphics and sound used in Ghostwriter.

4.5 Interactive stories

The previous section discussed research into computer tools which can assist the user in creating stories. This section explores computer programs in which the user can experience a story. The interactivity of virtual environments gives the potential for a new narrative medium in which the user is a participant as well as an audience member.

This section focuses on software which use both structure and content of narrative. Some research in interface design has used the structure of narrative to design the interactions between the system and the user (Plowman and Luckin, 1999; Laurel, 1991; Don, 1990). Narrative has also been used to structure the behaviour of intelligent learning assistants in a way that people find easy to interpret (Sengers,

2000; Rist, 2000; Lester et. al, 1997). However, for the purposes of the Ghostwriter project, the content of the narrative is at least as important as the structure because it is through the characters of the story that the role-players will become emotionally involved.

Section 4.5.1 explores the features of virtual environments which make them a suitable medium for interactive stories. Section 4.5.2 discusses the oxymoron of interactive stories and describes some current computer games which have interesting plot and characterisation. Section 4.5.3 discusses the issue of appropriate content for games intended for children and the fear of children's addiction to computer games.

4.5.1 Cyberspace as a new medium for narrative

There are many ways of telling a story. Storytellers, authors, leaders of story drama and film makers are all gifted at manipulating their chosen medium to craft compelling tales. In recent years a new medium has evolved which has the potential to expand our concept of narrative beyond its current form in existing media. Various researchers have noted the potential of virtual environments in story creation (Murray, 1997; Smith & Bates, 1989; Laurel, Strickland, & Tow, 1998). The two main advantages of this medium for story telling are that the story worlds can be perceptually compelling and interactive. The audience for the story has the opportunity to become part of the story.

In her book, "Hamlet on the Holodeck", Janet Murray (1997) considers the inherent features of digital environments which make them interesting as a new story medium. Virtual environments are just one example of digital environments. Other examples include hypertext stories and interactive fiction. The interesting common features of digital environments are that they are: procedural; participatory; spatial and encyclopaedic.

4.5.1.1 Procedural and participatory features

The interactivity of digital environments can be sub-divided into procedural and participatory aspects. The user of a digital environment can perform actions in the

world which have consequences in that world. Any computer program is procedural: any behaviour it exhibits must follow a set of rules. The user can infer these rules from the behaviour the system displays and so can learn how to influence the behaviour. A system in which the user can influence behaviour in this way is termed participatory. Obviously, the closer the rules for governing system behaviour are to the everyday world, the more natural the user will find it. Environments which are both procedural and participatory are interactive. For the user to participate in the story, the procedural features of the environment must be believable. The skill in harnessing interactivity in creating digital stories lies in finding the right rules for modelling various aspects of the world. This can take place on many levels - from the way objects move under the influence of gravity, to the way water looks as it ripples over a stone, to the way a person responds when you ask her questions. Unsurprisingly, while it is possible to model physical phenomena in extremely realistic ways, psychological realism in artificial people is a harder nut to crack. The computer games industry is beginning to borrow techniques from AI and cognitive modelling to create more realistic computer controlled characters. Funge and Shapiro (2000) propose a game programming language designed to specify computer controlled character's reasoning about the behaviour of other characters. Pisan (2000) proposes an application of AI classification techniques to the domain of training computer controlled characters to respond to new circumstances based on previous experiences.

If users are to interact with artificial people in a story then these people should appear to have emotions, attitudes, beliefs, personalities and should respond to the user in a believable way (Mateas, 1997; Doyle and Hayes-Roth; 1996; Bates, 1994). That is, the procedures which govern the behaviour of the artificial characters should produce output which appears reasonable to the user. One goal of the Oz project at Carnegie Mellon University was to research believable characters (Reilly, 1997; Bates, 1994; Mateas, 1997). The researchers were interested in creating agents who have believable, yet exaggerated behaviour in a similar style to cartoon characters. Merlin, the virtual guide character created by Doyle and Hayes-Roth (1997), is also a believable, cartoon-like character, as are the Babyz (Wavish and Connah, 1997).

Toby Gard, creator of Lara Croft (Gard, 2000) takes a similar perspective - he makes his characters seem more real by caricaturing the aspects of the character the player should focus on. Believable agents take advantage of the general willingness of users to suspend disbelief and anthropomorphise computer characters. From this perspective the goal is for the procedures to output believable behaviour.

On the other hand, some researchers are also concerned with modelling the mental and affective processes of a character as well as realistic output. Some researchers have worked on creating realistic character models based on psychological theories (Valesquez & Maes, 1997) or (Rousseau & Hayes-Roth; 1997) and theories influenced by studies of animal behaviours (Dautenhan 1997; Bryson, 1999). For example, Rousseau & Hayes-Roth (1997) defined three traits (self-confidence, activity and friendliness), two moods (happiness and anger) and two attitudes (attraction and status) to define the personalities of the computer controlled characters in their example Cybercafé setup.

While it may eventually be possible to populate virtual worlds with virtual characters, the question remains whether this is appropriate, especially for educational applications. Cooper and Benjamin (1994), who approach virtual worlds from a background in drama, believe that the purpose of virtual environments is to augment human-human communication rather than replacing it. They state that there is “no substitute for a skilled actor on-line in a networked virtual world, creating, improvising and adapting directly” (Cooper and Benjamin, 1994, p23). In a panel discussion about anthropomorphism in computer interfaces, Shneiderman states “My objection is when the computer is portrayed as a human; such misrepresentations are deceptive, counterproductive and morally offensive to me” (Schneiderman in Don, 1992; p69). He was referring to the use of human faces in interface dialogues, but his view is also relevant to the use of artificial characters in virtual worlds. The appropriateness of using artificial characters in a virtual role-playing activity may depend on the extent to which the computer controlled characters’ behaviour resembles a human role-player’s behaviour. It would certainly not be appropriate for children to role-play with computer controlled characters whose behaviour was emotionally implausible or misleading. However, given the limited and violent types

of interaction currently available to children in computer games (see Section 4.5.2), it is worthwhile to study how children can interact with more socially responsible and emotionally plausible artificial characters.

It is beyond the scope of this research to build artificial people who are able contribute to the story in a meaningful and creative fashion and so the game relies on actual people. On the other hand, the modelling of the physical environment in the Unreal Engine is so believable that playing the game is a suitable preparation activity for writing stories. It gives users the opportunity to explore a world which they could never otherwise visit.

4.5.1.2 Spatial and encyclopedic environments are perceptually compelling

The spatial and encyclopaedic aspects of digital environments give the possibility for stories which are as engrossing and inviting to explore as the real world. These features together contribute to immersion - the subjective feeling of being completely part of the digital environment. The digital environment offers users the opportunity to move through a story in space as well as time. In a digital environment story events actually happen to the reader. He is situated inside the story setting and can move around the setting as he pleases. The spatial aspect of digital environments invites interactivity - the user can choose where to go in the world and different events will happen in different parts of the world. A project devoted to a sense of place in a virtual reality system is Placeholder (Laurel et al., 1998).

Placeholder is a virtual environment version of a Canadian National Park (Laurel et al. 1998). The designers of the system intended to capture a “sense of place” associated with the setting, using 3D graphics, 3D audio, and by filtering the sights and sounds of the environment through the senses of creatures which might live there. Inhabitants of this virtual world include a snake, a fish, a crow, and a spider. Each creature has a unique perspective - the snake sees with infra-red, the fish can see under water, and only the crow can fly. Stills of the scenery and audio clips of the natural sounds to be found in the park were recorded on site and combined afterwards to make the virtual environment. Users can leave their mark on the

environment, by telling their own stories and attaching them to landmarks in the environment. This idea was inspired by the graffiti found in the National Park, depicting the presence of humans there over hundreds of years.

The encyclopaedic aspect of the environment refers to the extent of the “blank slate” which digital storytellers have at their disposal. With the huge storage capacity to be found on modern PCs, and the even greater pooled capacity of the Web, digital stories have potential to become vast, sprawling sagas, and even now with the release of level editors, a community of amateur game enthusiasts can generate many new digital stories. Combined with interactivity, encyclopaedic digital environments pave the way for personalised plots which may branch away from the main plot at many stages in the game.

Digital environments, then, have great raw potential as a storytelling medium. As discussed in the next section, although the technical sophistication of games has grown over the years, until recently game content lacked narrative structure or interesting characters, and seldom offered opportunities for catharsis in the same way as more mature forms of storytelling. However, this criticism is addressed in several new games which are discussed in the next section.

4.5.2 Computer Games

Many example of virtual environments can be found in the computer games available in high street stores. However, the art of storytelling in virtual environments remains in its infancy. Until recently, such games were designed to have only rudimentary plots and poor excuses for characters. O’Neil and Ocampo (1999) label games with very little plot or dialogue as having “porn movie plots”. Presumably this refers to games with a lot of gratuitous action but very little dialogue. Design effort has been mainly channelled into combat scenarios, realistic weapons, and computer based opponents. Combat games have a certain charm for some sectors of the population, but have never been as widely accepted as films or books. Also there is not enough depth or variety in a simple combat game to distinguish it from its numerous competitors in the current games market. Perhaps for this reason, game designers are gradually switching focus to more subtle and involving adventures by adopting

techniques from other storytelling media. Plot is one aspect of game-design which until recently has been neglected. A compelling plot can increase the feeling of immersion felt by players, yet as Edge magazine recently noted, too many games offer flimsy plots which could be “eclipsed by the meandering wibble of primary school children” (Edge, 1999a; p77).

4.5.2.1 Interactive stories: an oxymoron

Plot in an interactive medium is much more difficult to sustain convincingly than plot in linear (non-interactive) media like film or prose fiction. The problem is to weave in a good story, while maintaining the level of interactivity; “to merge the interactivity of games and the suspension of disbelief of drama” (Game Developer, 1995). There is an inherent conflict between interactivity and story (Mateas, 1997; Young, 2000; Szilas, 1999). For a game to be interactive, the player should have the freedom to do what she wants when she wants; but to participate in a story the player must experience a plot which has been predetermined by an author. Mateas (2000) proposes a theory of interactive drama based on Aristotelian principles of drama and Murray’s (1997) aesthetic categories for interactive story experiences. This is useful both for understanding the tradeoffs inherent in interactive storytelling and as a tool for analysing existing computer games. The theory integrates the “phenomenological (that is, what it feels like) aspect of the first person experiences with the structural aspects of carefully crafted stories” (Mateas, 2000, p.2). The holy grail is for users to experience agency while taking part in the story. Agency is “the satisfying power to take meaningful action and see the results of our decisions and choices”(Murray, 1997, p. 126).

In drama, there is an interaction between material resources and plot constraints. In the context of computer games, material constraints (or affordances) arise from the possibilities for interacting with objects and travelling to different parts of the world, for example, climbing on top of a box, or jumping in a river. Formal (or plot) constraints place some structure on these material possibilities – they suggest motivations for the player to act in particular ways. Formal constraints are the dramatic possibilities which make sense within the game, e.g. climbing on top of a

box would make sense if the player wanted to make a speech at a public gathering. Mateas (2000; p.4) hypothesises that “a player will experience agency when there is a balance between material and formal constraints”. He criticises adventure style games for presenting the user with lots of things to do (material constraints) but no reason for doing them (formal constraints).

This goes some way to explaining why cut scenes feel so contrived. Cut scenes and scripted dialogues are pre-recorded interactions and dialogue between the player’s character and other game characters. The difference between scripted moments and cut scenes is that the former are implemented in the game engine and the latter are occasionally presented in full motion video. Many games use scripted moments or cut-scenes to drive a plot forward, but a common problem is that the player loses control over their game-character and is forced to sit and watch as their character suddenly becomes autonomous and does or says things which they probably would not have chosen to do. According to Mateas’ theory, the user is presented with dramatic possibilities of the plot (formal constraints) which are not matched by the opportunity to respond by moving the character or talking (material constraints). Some other, less theoretical, approaches to interactive stories are discussed in (Crawford, 1999; Szilas, 1999; and Young, 2000).

The games industry has recently paid some attention to producing games which follow a plot (Edge, 1999). The next sections discuss some notable recent commercially developed computer games².

4.5.2.2 Half Life

Half Life (Valve, 1998) is generally considered to be a benchmark in the history of first person shooter games because it is one of the first games to introduce a plot between flurries of violence. The user plays as a scientist who goes to work one morning and inadvertently causes all hell to break loose at a nuclear research facility. The user can take refreshing breaks from killing foul alien life forms and solving “monkey and bananas” type problems to interact with computer controlled characters. The computer controlled characters are either soldiers, whom the user

² References for computer game titles can be found in the Game References section

must avoid, or scientists from whom the user can discover information relating to the plot and get help. As the adventure progresses, the user can piece together what has happened at the research facility. It turns out that an experiment has gone badly wrong, opening a portal into another dimension teeming with malignant life. To make matters worse, a mysterious government agency has arrived on the scene with the aim of killing everything (including the scientists) in order to contain the situation. At the end the user is presented with a dilemma about whether to join the conspiracy or not (this turns out to be a lose-lose choice). Although Half Life is often held up as an fine example of a game with a plot,³ the plot is not responsive to the user's choices. Viewed from the perspective of Mateas' theory of Interactive Drama, Half Life's attempt to impose a plot on a first person shooter is misguided because the user is unable to act on the dramatic possibilities spread before him.

4.5.2.3 Outcast

Outcast (Appeal, 1998) is a less successful game, but one which makes a more ambitious attempt to tackle plot and character. The main drawback of the game is the voxel based rendering technology which make it look less appealing and harder to use than its contemporaries. However, the plot is more complicated than Half-Life and the user has more material constraints; in particular, he can talk to the characters instead of just listening to them. The user plays Cutter Slade, a jaded ex-marine who ends up on an alien planet with a mission to find some members of a research team, one of whom is a romantic interest. He joins up with some aliens (the Talans) who agree to help him find his team if he will help them in their struggle against their oppressive government. The adventure unfolds across six different worlds which the user can travel between with the help of some glittering crystal portals and a two legged camel beast called a Twon Ha. The game designers wanted it to be an interactive movie; they hired a script writer to write dialogues between Cutter Slade and the sixty computer controlled characters, and the Moscow Symphony Orchestra to perform the score. The complexity of the game is hugely increased because of the interactions with the characters. Although the user selects Cutter Slade's speeches

³ I have lost track of the number of computer games fans who listen carefully to my views on developing games with storylines and then triumphantly, with the air of one who plays a trump card, ask "Yes, but have you played Half-Life?".

from a menu, there is a sufficiently large number of dynamically changing menu items and characters to present the user with a lot of choices. The six worlds of the games are comparable to levels in other games, but the facility to move back and forth between worlds makes it possible for the user to tackle plot segments in different orders. He may also decide to carry out tasks to help the characters he meets, which may in turn lead to different plot outcomes. His treatment of the characters will affect his success in meeting his mission goals. An Edge review notes “Outcast provides a depth of experience that proves addictive. You have to play hard to understand its world, but you always feel as if you are actually there.” (Edge, 1999 p79).

4.5.2.4 Deus Ex

More recently, Deus Ex (Ion Storm, 2000) has impressed gamers with the scope of its interactive plot. In this game, the user-controlled character has a few itchy moral dilemmas to start out with, and the user’s doubts increase as the game progresses. JC Denton, the main character, is a peacekeeper on an international peacekeeping force which is struggling to control terrorism. The problem is that the “terrorists” are fighting for the right of ordinary people to have access to a pharmaceutical which cures a prevalent fatal disease. There are also other difficult decisions to make along the way, and these alter the computer controlled characters’ opinions of you and the outcome of the plot. For example, the Edge reviewer relates a game incident:

“An attack on your brother’s flat will leave you with a choice; flee through the bedroom window, as directed, or stay and fight. The decision, though non-critical, affects the path of the game, and it must be made in an instant. Torn apart by morality versus cowardice, Edge took the Blair-esque third way and hid in a cupboard. Cowering, listening to the sounds of the conflict in a dark space until it’s ripped apart by stray gunfire is terrifying, slightly embarrassing and a perfect illustration of the freedom within the game.”

(Edge, 2000, p. 97).

This element of freedom within the game (material constraints), coupled with the dramatic possibilities (formal constraints) offered by the plot suggest that Deus Ex is more balanced than its predecessors in terms of Mateas’ theory of interactive drama.

The user is also responsible for developing his character's skills during the game. He can choose between different "augmentations" – permanent abilities – which come as a reward for fulfilling mission goals. This means that the user can influence his character's flaws and features, something which is uncommon in first person shooter games.

4.5.2.5 Elite Force

Elite Force (Raven Software, 2000), a Star Trek game, is an interesting example from the point of view of characterisation. It is based on the Star Trek Voyager television series and all of the main characters from the series appear in the game. The character's faces look approximately like their namesakes, and the dialogue was pre-recorded by the actors. The user plays Ensign Munro, a member of the Hazard Team on USS Voyager. When the ship is thrown across space into what looks like a spacecraft graveyard, the Hazard Team must explore their new surroundings and fight lots of well known enemies such as Klingons and the Borg. The user can use knowledge from the series to predict how these enemies will behave. The storyline is driven along by scripted moments (PCZone, 2000), pre-recorded action and dialogue segments which are triggered by user's actions. The user's actions define not only what scripted moment occurs next, but also the outcome of the level and future mission goals and other characters' attitudes to him. It seems that there is balance between interactivity, plot and characterisation to a sufficient extent for the game to be replayed in many different ways. It also seems to inspire the user to doubt the moral worth of his actions. This game reviewer is reflecting on an incident where Ensign Munro is advised (by Seven of Nine) that it would be foolhardy to attempt to save a team mate's life because of the risk to the rest of the team. He attempted to save the crewman, but failed and was reprimanded by Seven of Nine and Tuvok.

"I just carried on and completed the game trying to ignore a niggling thought at the back of my mind. But the seed of doubt had been sown; maybe I should have saved him."

(PCZone, 2000, p.63).

The reviewer then decided to experiment with different possibilities in the same scene. On one occasion he didn't attempt to rescue the crewman and was praised by

Seven of Nine, but was “spat at in disgust” by the Hazard Team. On another occasion he discovered that it was possible to save the crewman if he was quick enough and this time he won praise all round, and the attitudes of the team were changed for the rest of the game. He now plans to try making different decisions at the other numerous choice points to map out a parallel universe to the plot of the game the way he originally played it. Although the scripting system which allows this interactivity is powerful, it is similar to the decision tree plots of text-based adventure games where the possible user choices are large but finite and pre-scripted. However, even at this level of complexity, the facility for making decisions and viewing the consequences of each choice is a powerful tool for role-play. Elite Force was not on the market until the end of the Ghostwriter project; if it had been, it would have been a suitable candidate for a research role-playing virtual environment because of this flexible scripting system, the familiar characters and the pervasive moral dilemmas of the Star Trek universe.

4.5.2.6 Alice

“When the remarkable turns bizarre, then reason turns rancid”

The Cheshire Cat, Alice.

American McGee’s Alice (Rogue Entertainment, 2000) was designed to represent the emotional state of a character. The game begins in a mental institution where the user’s character, Alice, is trying to come to terms with her inner anguish. It is based on Lewis Carroll’s “Alice in Wonderland”, but this Wonderland is the dark, twisted place that is Alice’s psyche. American McGee, the creator of the game, says:

“Essentially what Alice is doing is fighting for her own psychological redemption. All the characters represent bits of her emotions that still haven’t been dealt with and the locations actually map out the different fears in her mind that she’s got to face – pain and suffering and so forth. She’s got to save Wonderland and save herself from the trauma that she’s suffered... Every one of the characters represents one of the major emotions she is fighting against, or fighting to resolve. For example, the Hatter is anger, the Jabberwocky is fear and the Queen is sadness. She is essentially breaking down emotional barriers in her mind.”

(PCZONE, 2000, p.38).

Alice is accompanied on her adventures by the Cheshire Cat, whose grin is slightly more manic than usual and whose advice is far from reliable. Her relationship with the user is unusual – she talks to herself *and* the player during the game. Clearly, the player is not meant to *be* Alice, but rather someone who can help her. Alice’s facial expressions change as she suffers through the traumatic game events so the user has a way of gauging how she is feeling. This is intended to make the user feel guilty when he has made the wrong decision and sad and angry when Alice suffers. When Alice finally reaches the Queen’s Domain, after her travels through the Vale of Tears, Mushroom Forest, The Mad Hatter’s Area and the Land of Fire and Brimstone, she has an opportunity to vanquish her fears once and for all. Thus, at the end of the game the user will have discovered why Alice is so disturbed and helped her to come to terms with it. The game is not intended for children because of its disturbing content, but it is possible that the techniques used to make the user care about Alice can be adapted for character driven games for children.

4.5.2.7 Vampire Masquerade

Vampire: The Masquerade - The Redemption (Nihilistic Software, 2000) is a computer based version of White Wolf’s pen and paper role-playing game. It is an adaptation of an extremely complicated fictional gothic universe populated by vampires, humans and ghouls. The multi-player mode is of interest here because it facilitates role-playing between several players in a similar style to pen and paper role-playing games. A storyteller or dungeon master can create an online adventure for his role-playing group and then lead the role-play session by improvising lines of text from the perspective of various characters (Harding, 2000). The storyteller can first of all create a new location with non-player characters and suitable objects using the level editor, and then can manipulate these scenes and objects during the game in order to drive the plot forward. By “possessing” characters he can introduce obstacles and conflict into the adventure and create situations which will help the role-players to become more emotionally involved in their adventure (see Clark, 2000 for an article on how to be a good storyteller in this genre). Laying aside all the peculiarities of this vampire obsessed culture, this form of role-play is very close to Ghostwriter. There is an expert who designs the adventure beforehand and then leads

the role-play session with the twin goals of progressing the plot and encouraging the role-players to stay in character and have a compelling experience. Furthermore, Nihilistic Software have also released a Java Software Development Kit (SDK) to assist the storytellers/dungeon masters/role-play leaders in their task. This contains the source code for the original game with good documentation; Embrace, the level editor; a model viewer; and a game template editor. There is a facility for creating cut scenes (scripted sequences of dialogue and actions between characters). The features of Nihilistic's tool come very close to the tools required by a director in a dramatic virtual environment as described in (Young, 1996). It would be an extremely powerful tool to help children to author virtual stories as well as experiencing them, as discussed in Section 4.4.2.6. This would be an interesting line of future research.

4.5.2.8 Summary

This section described Mateas' theory of interactive drama and applied the theory to some commercial computer games. It considered recent games which stand out because of their management of the tradeoff between interactivity and plot, characterisation or presentation of moral dilemmas.

4.5.3 Computer games and children

"I always look at the game worlds we build as other places for us to go ... Most of them are hell and almost none of them are heaven. We're creating hells for our children to live in."

Henk Rodgers (taken from an interview in Edge, 1999).

Some parents and educators have expressed concern that children spend too much time playing computer games and, worse, that the computer games children play teach them to behave violently. A recent edition of the Channel 4 program "Dispatches" (April 2000) interviewed parents who worried that computer games were instrumental in high school shootings in the USA. Other parents were concerned that "irresponsible" driving games have caused an increase in joyriding in their town. At a recent meeting of the Scottish Storytelling Forum, the members expressed their concern that children spent too much time playing computer games

and not enough time in social contact with other people. Some of the storytellers, who have a lot of experience working with children, hold the extreme view that children should not be allowed in front of a screen before they are twelve years old. However, it can be argued that while children currently play games which are inappropriate, computer games technology can also be used to create fun, worthwhile activities for children. This section briefly discusses research into how computer technology affects children's behaviour.

Gunter (1998) summarises studies on the effect of violent computer games on children and adolescents' behaviour. These studies were designed to address the fear that playing violent computer games encourages young people to behave aggressively after playing the game. On the one hand, it could be the case that young people learn to imitate the violence they witness onscreen in their real lives; on the other hand it could be that violent games are an outlet for aggression and serve to neutralise aggressive tendencies. Gunter concludes that there is no definitive evidence either way and calls for further systematic research into the effects of violent computer games on children's behaviour.

McNamee (1999), however, argues that adults who worry that aggressive behaviour onscreen may transfer to off screen situations do not give children enough credit for being socially competent. She conducted a large-scale survey of young people's attitudes to computer games. Through questionnaires and in-depth interviews with British secondary and primary school pupils she came to the conclusion that most children have healthy attitudes to computer games. She quotes a 15 year old boy:

“Adults think that children are mindless cretins, devoid of culture and are hermits who only inhabit their rooms, with goon-like eyes fastened only to their computer screens. This is rubbish. Children are smarter than it appears, just because Koa Lung in Mortal Kombat punches his opponent in the face and his head comes clean off, doesn't mean that an 'impressionable' child will do the same, despite the excess amounts of blood.”

(McNamee, 1999, p3).

She found that children of all age groups thought that computer games were unsuitable for children younger than themselves, and that the young people were well

aware of the concerns that adults had about games. Some of them mentioned that they were careful not to spend too long at the computer in case they strained their eyes or suffered epileptic fits.

McNamee also found evidence that computer games do not isolate children; rather, they facilitate friendship, especially among boys. Around 70% of both boys and girls said that they preferred to play computer games with some one else rather than by themselves. A picture emerges of children, particularly boys, playing with computer games as a social activity; it does not replace social contact. In fact some of the boys said that it was a way to make new friends through swapping software or talking about games. The girls were less inclined to be interested in games. McNamee suggests that computer games are important to boys' friendships because boys often like to have an activity to perform while with friends while girls are more likely to "hang around" and talk. There was a social taboo attached to spending too much time in front of the computer – the children were scornful of "geeks" who do not have a social life. This study suggests that children have a healthy attitude to computer games; that they play them with friends or family more often than they play them alone, and that many children are scornful of people who spend too long in front of a computer.

Regardless of whether children imitate aggressive behaviours from computer games in real life, the violence depicted in many games is highly unpleasant. Furthermore, many games are implicitly sexist and racist. In a study to evaluate student's responses to commercially available computer games, Amory et al., (1998) found that the participants preferred adventure style games such as *Zork Nemesis* to the shoot-em-up style games such as *Duke Nukem*. This information was used to design a 3D adventure game to teach students about evolution. The participants were also asked to comment on the content of various games. *Duke Nukem* was considered to be "male dominated with rough, violent behaviour", degrading to women and racist. *Duke Nukem* is a particularly unpleasant example, but many other computer games on the market have violent themes and implicit sexist and racist attitudes.

As discussed in Chapter Six, children currently do play games which have been designated unsuitable for their age group by The European Leisure Software Publishers Association. Restricting children's access to unsuitable games will always be difficult to achieve in practice, but providing equally attractive games with more positive content is perhaps one way of approaching the problem. As the results from the Ghostwriter field study show (see Chapter Six), children enjoy games based on communication. This style of game may be a means of encouraging children away from the currently available violent, sexist and racist games.

4.6 Summary

This chapter explored research in the area of educational software designed to help children create stories. The aims of the Ghostwriter project, and the implementation of these aims, were contrasted to other projects. Ghostwriter can be distinguished from previous and current projects both in the implementation technology and in the approach to supporting peer-peer collaboration. Since it is adapted from a commercially produced game, the quality of the sound and graphics in Ghostwriter is more perceptually realistic than most previous research software. Whereas other projects facilitate peer-peer collaboration through software features or specifically designed software agents, human role-play leaders facilitates collaboration in Ghostwriter. This has the advantages of the human role-play leader's experience, intuition and imagination. These qualities would be difficult to mimic in software agents without a serious research endeavor outwith the scope of this project.

Theories of presence suggest that in order to meet the educational aims of the project, the users of the virtual role-play environment should experience perceptual, social and self presence. Social and self presence are particularly important for the effectiveness of the role-playing exercise. The section on computer-mediated communication has discussed how users of text based CMC environments experience social presence to such a degree that online societies are formed. This is possible in a text based medium because the members learn to recreate social context using words alone. The existence of such communities demonstrates that text based

communication is a medium in which the empathetic relationships required for role-play can take place.

The work of Amy Bruckman and Sherry Turkle (Bruckman, 1992; Turkle, 1995) has shown that members of online communities also experience self-presence. In particular, members' mental models of their own identity can change. Indeed, many people use online communities as an informal playground for experiments with assuming a new persona. One of the purposes of role-play is to assume the identity of another person in order to experience events from another perspective. It seems that virtual environments are suitable places for this sort of playful exploration of identity.

A theory of interactive drama (Mateas, 2000) suggests that interactive stories are most effective when the user or audience experiences agency. The user is most likely to experience agency when the formal constraints and the material constraints of the virtual environment are balanced, that is, the dramatic possibilities offered by the plot are balanced by the set of actions open to the user.

The next chapter describes the design of the Ghostwriter environment with reference to these theoretical design principles. It shows how the graphics, music and sound effects were chosen to engender perceptual presence. It explores how the storyline was planned to engender social and self presence. There is a discussion of the balance between the formal and material constraints of the story and how current technology places limitations on material constraints. The moral values which emerge from the storyline are considered.

5 The Design of Ghostwriter

5.1 Introduction

“And if you are very, very careful, or very, very highly skilled, you can dip a cup in the Ocean,” Iff told Haroun, “Like so”, and here he produced a little golden cup from another of his waistcoat pockets,” and you can fill it with water from a single, pure Stream of Story, like so,” as he did precisely that, “and then you can offer it to a young fellow who’s feeling blue, so that the magic of the story can restore his spirits.”

Haroun and the Sea of Stories, p. 72.

This chapter describes the virtual role-playing environment. Although there is a tradeoff between story and interactivity, as discussed in Chapter Four, the story ingredients for Ghostwriter are important for fulfilling its educational goals. Setting, characters and conflict between the characters are provided as a starting point in Ghostwriter. Interactivity emerges as the role-play leader responds to the role-players’ decisions. Section 5.2 describes some general design decisions and pilot work on which Ghostwriter is based. The story design and surrounding issues are discussed in Section 5.3.

The “Harry Potter” books by J.K.Rowling provide some examples of appropriate material for the story ingredients. Combined with techniques from story drama and successful computer games, these examples led to seven guidelines for the content of the Ghostwriter story. A description of the storyline in Ghostwriter, and an explanation of how it implements the seven guidelines is given in Section 5.3.3.

Ghostwriter is based on the commercial game Unreal (Epic, 1998) using Unreal script and Unreal Ed. Section 5.4 describes the Unreal technology, and the aspects of it which were adapted for Ghostwriter. Details of the user interface, character models, animations and sound samples are given.

As identified in Chapter Four, to meet the educational goals of Ghostwriter, it is necessary for the role-players to experience perceptual, social and self presence. The aspects of the Ghostwriter environment which are designed to evoke presence are discussed in Section 5.5. There is also a discussion of how the Ghostwriter design

deals with the tradeoff between plot and interactivity. A chapter summary follows in Section 5.6.

5.2 General Decisions and Pilot Work

There is a large space of possible designs for the Ghostwriter system. At the outset, it was decided to limit the possibilities to a feasible subset. These decisions were taken through intuition on the part of the designer, after discussion with storytellers, and pilot sessions with children and adults.

Firstly, it was decided to use a graphical and audio virtual environment rather than a text-based virtual environment. While in the past, other studies have shown that text-based virtual environments can have a positive effect on children's writing (Sharples, 1983; Miller, 1993), it was decided that the focus of this study was to investigate the effects of the newer, graphical virtual environment technology. The design and development of this graphical environment was judged to be sufficiently time consuming to make the additional development of an analogous text-based version unfeasible. For this reason, there was no comparison of text-based and graphical virtual environments in this study. However, there are likely to be educational strengths and weaknesses of each. Firstly, theories of presence (see Chapter Four) suggest that the rich visual images and sound effects of the graphical virtual environment is likely to be more immersive and engaging than a text version. This effect is likely to be strengthened in cases where the user has difficulty reading. Although the current Ghostwriter design involves typed messages, this amount of text is small compared to the amount which would be required to convey the graphical scenes in words. In addition, the pupils' expectations of technology are likely to be a factor. The pupils are used to playing high quality graphical games at home (see Chapter 6) and may well judge text-based games to be inferior. This perception may lower their motivation to play the game, although empirical work is required to determine whether this intuition is correct. One strength of a text-based environment might be that it could encourage pupils to use their imaginations to picture the game locations from the textual descriptions. Again, this would require

empirical investigation, although there would be some difficulty in operationalising this claim.

Another design decision was to make Ghostwriter a multi-player game rather than single-player game. This decision follows from the educational decision to use dramatic role-play as a means to encourage pupils to consider characterisation. A single-player version of this game would require an automated role-play leader which is out-with the scope of this project.

The decision not to focus on children as designers of virtual environments came from the constraints of the (then) current technology. The interface to the most suitable virtual environment editor (Unreal Ed) is difficult to learn, and requires some knowledge of programming. Without an interface designed specifically for children, the process of creating a virtual world would be too difficult and frustrating for children. However, the storyline for the virtual environment was designed with the help of two professional storytellers who have extensive experience of working with children and creating stories for them.

Once a prototype of the environment was complete, informal pilot testing with children and adults was used to resolve some design problems. Observation of environmental features which users had difficulty with, such as jumping up stairs, were used to adjust the environment. Some adults found the first person perspective difficult at first because they expected to see themselves in the world. However, the children did not comment on this and it was decided to keep the first person perspective because, in Unreal, it is more responsive to user control than third person.

Pilot testing was used to investigate the most suitable ways to assist the user with navigation. The environment is very large and potentially confusing. After some unsuccessful experiments with guiding the user with environmental cues such as light and sound, it was decided to explicitly guide the user with game characters. Observations of pilot users' interactions with the game character guides led to further fine-tuning. For example, it became clear that the sound samples of the guide

character's voice needed to help the user navigate using landmarks rather than simple directions.

There was also more formal pilot testing with fourteen pupils in the school in which the field study took place. These tests helped to identify recurrent bugs and likely user behaviour. For example, the users tended to explore the environment very quickly, so the maximum speed of the characters was subsequently +reduced to slow the pace of the game down.

5.3 Story Design

As discussed in Chapter Four, the content of many current computer games is unsuitable for children because of violent, racist or sexist themes. The content of Unreal, the game on which Ghostwriter is based, is certainly unsuitable because the plot revolves around killing monsters. The new content should match the criteria for the virtual role-playing environment as defined in Section 2.4. The role-players should empathise with their own characters and with the other game characters. They should become emotionally involved in the adventure and with the characters. The role-play session should encourage the children to think about challenging issues, and should help them take the perspective of others. In order to create a story for the game which met these criteria, and would appeal to children, inspiration was drawn from popular children's book series "Harry Potter". Section 5.3.2 discusses the guidelines which stem from consideration of the Harry Potter books, story drama, creative writing instruction and computer games. Section 5.3.3 describes the Ghostwriter story and how it relates to the guidelines from the previous section.

5.3.1 The "Harry Potter" Series

The story design for Ghostwriter is influenced by the "Harry Potter" books by J.K. Rowling. Aimed at children, these books have proved tremendously popular with children, parents, teachers, librarians and critics. Joanna Rowling has received nine literary awards for her first two books, and Warner Brothers have acquired the film rights to her series. The success of Harry Potter is refreshing because there is substance to the books which deserves the attention of a huge number of children.

The books stand in contrast to the popular “Goosebumps” books which previously attracted reluctant readers into reading for pleasure:

“The characters are built up. The dialogue is believable. There are cracking jokes and great set pieces and they are cleverly meshed into the narrative. And then there is the joy of the writing: even in the continuity explanations at the beginning of the books you can sense that Rowling is enjoying herself.”

(Ainley in Fort, 1999).

Harry Potter is an ordinary boy who happens to be a wizard. His world is very like ours in 20th century Britain, except that in his world magic exists. He attends a school for young wizards with his friends Hermione, Ron and his owl Hedwig. Harry is a likeable character who enjoys sports, loses his temper, forgets to do his homework and gets exasperated with boring teachers in the same way that most children do. He also “stands for human goodness against the inhuman evil of Voldemort, whose designs he thwarts by revealing previously unsuspected powers released by almost self-sacrificial courage” (Fort 1999). Voldemort is a bad wizard who in his efforts to gain power killed both of Harry's parents when Harry was still a baby. His battles against Harry give the reader hope - if Harry, who seems so ordinary in other ways, can muster the courage to challenge this evil perhaps we would too if we were in that situation.

Joanna Rowling is regarded as one of the best children's authors since Roald Dahl. In fact, she does not like this comparison because she feels that her books are more moral than Dahl's (Rowling in Fort, 1999). A theme in many of the Dahl books is the triumph of the child over nasty, overbearing adults. In the Rowling books the theme is more traditionally split into a mythic good over evil struggle, and there is collaboration between the children and the good adults.

Details of specific aspects of Harry Potter books which have been included in the game design are discussed in the next section

5.3.2 Game guidelines

This section describes some general guidelines which were used for the design of the Ghostwriter content. The guidelines are drawn from considering the parts of the Harry Potter books which are particularly relevant to the role-playing goals of encouraging the role-players to: get emotionally involved; empathise with the characters; and encounter challenging problems. They are also drawn from consideration of computer games, storytelling and story drama.

Guideline 1. The environment should have story ingredients built in.

The motivation for building a story into the environment is that it will place some structure on the role-players' interactions and give some purpose to their exploration. Once their initial infatuation with the computer game has waned, the children will need concrete goals for a role playing session. They will need to know about the character they are playing, why the character is in the environment and the goal of the character. Otherwise the role-playing will be unfocused and less effective.

The question is: how much structure should be given. This is a particularly important issue because role playing in the environment is a preparation for writing a story. The more plot which is incorporated into the environment, the less creative the writers are required to be. Having said that, providing some plot information is likely to make the overall task of story writing easier and perhaps leave the author more time to concentrate on characterisation.

The environment should contain the raw ingredients of a story: setting, characters and enough conflict between the characters to form a plot. The role-players will encounter these conflicts and their attempts to resolve them will create a story. Furthermore, exposing role-players to conflicts forces them to make decisions in role which helps to define the personality of the character and involves them more.

Characters in the environment should have personalities, motives, and histories. Some of these characters will be role-played by participants, while others will be computer controlled. The potential for a story arises from conflicts between these characters. The outcome of the story should be largely determined by the interactions

of the role players. On entering the virtual environment the role-players might encounter an exciting and unstable situation which is caused by a conflict in the desires of some of the characters. What the player chooses to do should have an impact on the plot that develops. One set of story ingredients can be the basis of many different plots depending on who the role-players are, the characters they assume and the decisions they make.

Guideline 2. Users should have some background to the story before entering the environment.

For a focused, dramatic role-playing session the role-players should know beforehand why their character is in the game situation and what the character wants to achieve during the game.

It would be disorienting for a user to find herself role-playing a character she knows nothing about, or to gradually discover who the character is from clues in the game. In the game “Unreal”, for example, the user’s first view is an upside down view of the interior of a space ship, which gradually turns to the right way up. At that point the user gains control of the character. It is almost as if the user has re-gained consciousness with complete amnesia about her previous life. In this game there is no real explanation of who the player is or what her motives are, although there is an implication that she was on a prison ship. It would be clearer to keep a sharp division between the virtual environment where the user role-plays a character based on knowledge of some story ingredients, and the classroom where the pupil is introduced to the story characters. That way, the user will start playing the game with some knowledge about her character and this should help her assume the role.

This is a very common device in other interactive media, although sometimes it is less effective than others. Pausch et al. (1997) list a number of guidelines for immersive virtual environments, derived from their experiences with the Disney interactive Aladdin adventure. One of these is that user should know the background to the environment before beginning. In their case, the users were familiar with the Aladdin film. Similarly, players of Star Trek Voyager Elite Force already have a background to the characters because of their knowledge of the TV series.

As discussed in Chapter Four, Section 4.5.2, in commercial games the introduction to the story often takes the form of a movie sequence. The user watches a movie scene unfold between game characters which motivates the user's goal in the game. For example, in "Outcast" the player learns the details of his mission, and a bit about the lifestyle of the character he plays from the initial movie clip. Cut scenes are occasionally also used to develop a story line after the user has completed a section of the game. There is a curious metaphysical glitch in this style of plotting. The hero is alternatively controlled by the user and the producer of the movie clips. The transfer from user control to a movie clip and back is as strange as demonic possession! In terms of Mateas' theory of interactive drama, the formal constraints exceed the material constraints. For this reason, the pupils should consistently control the same character for the duration of the game.

This guideline is also based on educational approaches to teaching creative skills. Drama and writing teachers both design exercises to structure creative tasks in order to simplify them. In story drama, basing a role play session on a book or story is very common (Booth, 1994). The teacher may tell the class part of a story and stop at an exciting part. He then would lead a role playing session to improvise what might happen next. The children would assume the role of characters (or groups of characters) from the story, and based on what they understood about the characters and situation so far, would act out an appropriate scenario. From this exercise the children would become more intimate with the characters and achieve a better understanding of them. Although the teacher might finish reading or telling the original story, he would show the children that stories may have many endings and that if the ending they created is true to the characters, then it is as valid as the author's ending.

Guideline 3. Users should have different experiences during the adventure and resolve the differences in the final scene.

In "How Plays are Made" Griffiths (1982) describes how interesting plots are based on conflicts. The conflicts are usually centred round a character. They can arise from external obstacles which prevent the hero achieving his goal, internal strife introduced by his conscience, or tension caused by incompatible goals of the main

characters. A plot without some kind of conflict usually does not hold the interest of the reader.

Similarly, in story drama, the teacher in role will generally create obstacles and introduce tension to the role-play to encourage the participants to fully appreciate the situation their character is in, and to understand how it feels to be that character (Booth, 1994). The personalities of the fictional characters become defined by their choices during difficult moments.

Building conflicts into the role-playing environment is one way to encourage users to create well-characterised stories based on the experience. The goal of the role-playing exercise is to help participants to develop an understanding of the characters and the relationships between them. This preparation should lead to stories with mature characterisation. The in-built conflict is intended to encourage the role-player to identify and empathise with her role, to promote stimulating discussion with the other role-players, and to elaborate on the relationships between the roles.

The question is: how are such conflicts to be engineered in virtual environments? One approach would be to place role-players in a situation where they experience events which alter their perceptions, opinions and feelings. In this way, conflict can arise from incompatible attitudes to game characters, which the role-players have acquired from their experiences in the environment.

By splitting the users up early in the game, they have a chance to form their own opinions about game characters and objects, experience game events and form independent goals. The characters can also learn skills or information which they can use later in the game and so can each contribute individually to the outcome of the plot.

If the characters are split up, they should meet again for a final dramatic scene where the conflicts the environment has set up are resolved by the characters. Different groups of role-players will tackle the conflicts differently with the result that the same built-in conflicts may give rise to a variety of different solution endings.

For example, in “Harry Potter and the Prisoner of Azkaban”, Hermione and Harry manage to travel back in time together and save the day with the combination of Hermione’s knowledge of a time altering device and Harry’s heroism against the soul- devouring Dementors. Harry and Hermione came by these skills in separate sub plots, with neither knowing that the other possessed them.

The final scene is the most important because dialogue will be necessary to resolve the contradictory information about the characters and make a decision about what action should be taken. At this point, the role-players will explore the relationships and personalities of the characters in more detail in order to decide who can be trusted. This exploration is likely to lead to writing with in-depth characterisation.

Guideline 4. The user should be faced with difficult moral choices.

“It is our choices, Harry, that show what we truly are, far more than our abilities”

Albus Dumbledore (Rowling, 1998)

As discussed in the previous chapter, computer games are not renowned for their morality. Often the whole point of a computer game is to commit virtual acts which would be considered immoral in real life. In contrast, one aspect of educational drama work is ethics. Drama can be used to help children explore difficult ethical problems through simulation. A fictional moral dilemma, when treated thoughtfully with the help of a teacher, can help children to arrive at a value system of their own. An important point here is that the later stages of moral development are usually seen to involve autonomy. A morally well developed person will have considered, individual opinions on what is right and wrong, and these may or may not correspond to the teachings of organisations such as the Church or the opinions of other people (Damon, 1999). There are many morally ambiguous circumstances to which there is not a clear cut “correct” solution and it is important to help children to think about these cases carefully and come to their own conclusions. Drama is a particularly good medium for exploring moral education in an interesting and vivid way (Winston, 1998).

While including a moral element in an educational role-playing environment is a reasonable goal in its own right, it can also make the adventure more exciting. As in story drama, the participants will be more engaged in the stories if the decisions they make have significant potential to affect the outcome of the plot. So much the better if they are decisions which affect the welfare of the other role-players and characters. Having said that, children may be tempted to choose the easiest option so that they can rush on and finish the game. The environment should be designed in such a way that the outcomes require equal amounts of effort to achieve. It is the job of the role-play leader to coax the role-players into making creative decisions rather than quick, stock decisions.

A particularly captivating example from “Harry Potter and the Prisoner of Azkaban” is when Harry has to decide whether to let his friends to kill a character who was instrumental in the death of his parents. In the end he decides that he doesn’t want his friends to have the villain’s blood on their hands, so he is merciful. This is an example of a morally ambiguous situation which requires serious thought.

Guideline 5. Virtual lives should have value.

This guideline follows from the previous one. Naturally, any game which intends to promote moral growth in its users should value the lives of the game characters. The game should make the realistic consequences of violent actions clear. Unlike current games, which are worse than the “Itchy and Scratchy” cartoons for senseless violence, when any character loses its life it should be of major importance in the game. There has been a noticeable trend towards less killing in games recently: in *Rainbow Six*, *Outcast* and *Thief* the player is penalised for unnecessary killings. On the other hand, the player's motivation for not killing in these games stems from the rules of the game, rather than any deep rooted moral considerations.

There is no reason to restrict the role-players to a safe, comforting or unchallenging environment. It should have enough psychological conflict to make it interesting and involving. The Harry Potter books depict a series of battles in the war of good against evil. Harry’s life is endangered on more than one occasion, but always as a major plot event and this will usually be of considerable importance to the reader.

Part of the excitement of the books comes from the reader's attachment and concern for the characters - we really care when Ginny is kidnapped and we are almost forced to read on to discover whether Harry will find her in time.

In a similar vein, the role-players should have the option to take part in any battles which concern them. Role-players should have opportunities to defend themselves from their enemies, although there should perhaps also be a safety net of other good characters who can help them out of difficult situations. In the Harry Potter books, there is a general theme of Harry's own efforts saving himself and other people. At the end of the third book, his counter spell against the Dementors saved him against all the odds. He also had some help from adult characters; in particular his tutor, taught him what he needed to know to defeat the Dementors.

Guideline 6. Virtual objects should be personally meaningful to characters.

If objects are to be included in the environment, they should be important to the plot as well as meaningful to characters. An annoying first person shooter game cliché described by O'Neil and Ocampo (1999) is the number of irrelevant objects which litter the environment. Veterans of "Doom" are bound to recall the peculiar ease with which they came across new weapons, and the mysterious appearance of medical kits in random locations. Even the less violent adventure games have an emphasis on collecting material objects. An anecdotal illustration of standard gaming expectations arose when testing navigation in Unreal. After a few minutes, one user said (in disgust) "Are there no guns here?". When assured there were no guns, he said "Well what do I have to collect, then?". It is hard to escape from the view that games revolve around the collection, trading and use of objects. But this detracts from characters and relationships. Plot should be driven by the desires of the characters, rather than a meaningless harvest of magical objects.

Any puzzles, riddles, new skills and other ways of giving bored users a break should also be meaningful to the characters. New skills should be relevant (but not essential) later in the game, and puzzles can be designed to reveal information which might be of use in other situations.

The “Harry Potter” books again give an example of how things could be. Rowling has resisted the temptation to pepper her stories with serendipitous, but meaningless magical devices. The most important magical plot devices are also of personal significance to Harry. The best example is his father’s invisibility cloak, which as well as being extremely useful for creeping around the school at night, is one of the only links Harry has with his dead parents. There is also an enchanted map which becomes vital in the tense scenes at the end of “The Prisoner of Azkaban” and in “The Goblet of Fire”. This was introduced much earlier in the story as a gift from his friends the Weasley twins who wanted to cheer him up. It also functions as another link with Harry's family because it is revealed to have been made by Harry's father and friends.

Guideline 7. The role-play leader should be human.

In story drama, the leader of the role-play is very important. The aim of the leader is to challenge the role-players’ attitudes at every turn, in an attempt to get them to think deeply about the situation from their characters’ points of view. The role-play leader must be inventive, responsive and wily as he thinks up new obstacles to place in the way of the participants. His use of language may elevate the language of the participants; his portrayal of a character may move them to sympathy. The leader is there to coax the very best from the participants.

Computer-mediated role-play currently has disadvantages for the role-play leader including loss of facial expression, both in reading from the children’s expressions and showing emotion through his own, and loss of voice tone. However, it has one great advantage - the players cannot tell who the teacher is playing. This is also useful when the teacher switches role as frequently happens in story drama. It is probably easier to dissociate the persona of the teacher from the persona of the character when visual and auditory cues are lost. Characters have the potential to be more believable.

It is more difficult for a role-play leader to assess how attentive the participants are in a digital environment, so the environment should have means of tracking the

progress of the players and monitoring their movements. If the leader suspects the child is bored then she could activate a riddle or surprise to re-engage the user.

Given the qualities of the role-play leader outlined above it seems to be a requirement that this person is human, rather than computer controlled. Research into artificial characters has not progressed to the stage where a computer controlled character's performance could surpass that of the children's. Furthermore, the teaching aspect of the leader's task could not be simulated by an intelligent tutoring system module at the current time because of the difficulty in understanding the content of the improvisation. This is an challenging area for future research.

5.3.3 The Ghostwriter storyline

This section describes the Ghostwriter storyline and how the guidelines outlined in Section 5.3.2 have been implemented in the game.

1. Story Ingredients

He knew what he knew: that the real world was full of magic, so magical worlds could easily be real.

Haroun and the Sea of Stories, p. 50.

The story ingredients for the Ghostwriter environment are a mixture of common ideas from children's fantasy books. The theme of a struggle between Good and Evil has a particularly noble ancestry. It was decided to re-use it because all kinds of important moral decisions arise naturally from it (see "Guideline 4, Difficult Choices") and intuitively, a fantastical, magical theme would seem to appeal to children of the target age. The device of an evil character embodied as a book is borrowed from "Harry Potter and the Chamber of Secrets". In this book, the evil Voldemort is disguised as the diary of a seemingly friendly school boy in order to dominate a lonely child. This is a wonderful idea, and also serves as a device to escape the limitations of displaying artificial characters' emotions. The role-play characters are brother and sister and their purpose in the environment is to help their grandmother. The reason for introducing related characters was to strengthen the emotional ties between them, so when in role, the users have good reason to care

about the fate of their fellow role-players. In relating the goal of the role-playing session to a family member, the intention was to strengthen the role-players' motivation to stick to the goal. A grandmother (rather than parents) was chosen to avoid alienating those with troubled family backgrounds and because grandmothers in books often fulfill motivating roles.

The scenario is as follows:

There is an old castle, which houses an ancient temple - a place rumoured to make mortals all powerful. As part of a perennial struggle between good and evil, the castle is guarded by a good character called Fred. He is trying to prevent the terrible Lady Searle from infiltrating the castle and thus amplifying her evil powers. Fred has tried to protect the castle with ferocious guards and various supernatural booby traps. Unknown to Fred, Lady Searle anticipated this and took the precaution of embodying herself as a book in one of the libraries in the castle before he defended the place. It is just a matter of time before someone opens the book in the library and Lady Searle coaxes them to take the book to the temple where she can regain her human form and start her plans for world domination.

Meanwhile, in a nursing home not far from the castle, an old friend of Fred - Mrs Smith - is bored and lonely and longs for her friend to visit. Perhaps she also suspects that something is amiss. She decides to send her grandchildren, Daniel and Jenny, to find Fred and ask him to visit her. As protection for her grandchildren, she reminds them that if they need her help they can always call on her.

The children arrive at the castle, but just as they walk over the drawbridge to the castle, they run into Fred's defence magic which causes an earthquake and flings them to opposite ends of the castle, alone and confused.

Daniel finds himself in a dark library. As he climbs to his feet, he hears a voice. It is coming from a book on the table. It is, of course, Lady Searle. She is friendly to him and offers to show him to his sister. Gradually, Daniel may notice some clues which suggest that the Lady Searle is more than she seems.

Jenny has ended up near Fred's garden, but she runs into a ferocious guardian creature first. Although she manages to escape she is slightly dazed when she finally makes it to the garden. She meets Fred who heals her, and gives her the potion to use later. She explains about her Gran, and he explains he can't come to visit because he fears an attack by Searle. Because Daniel has picked up the book, Searle is getting stronger and Fred can sense this through the behaviour of his strange pet, Doggy. Fred can't leave the garden because he is strengthening the defence magic round the temple itself, but he suggests that

Jenny should find Daniel to warn him. Fred lends Doggy to Jenny to guide her round the castle and warn her when Searle is near.

Daniel and Jenny will eventually meet up near the temple. Jenny may be worried by the behaviour of the pet in front of the book. Daniel could have trouble believing what Jenny tells him about Searle, having been fed the opposite propaganda by the book itself. If Searle reaches the temple she can assume human form and execute her evil plans. Daniel and Jenny must then decide what to do.

The user role-plays Daniel or Jenny, with a classmate playing the other character. The roles of Lady Searle and Fred are improvised by the teacher in role. Granny does not enter the virtual environment unless she is summoned by the children. She is a guardian angel character who is useful for protecting the users' virtual lives (see "Guideline 6, Valuable Virtual Lives"). When called she can speak to the children but she is not embodied. Fred's pet is computer controlled.

2. Story background

The role-players are introduced to the story scenario through a voice message from Granny. Computer games usually avoid giving users too much reading material before starting the game, preferring to introduce users to the game with a movie sequence. There is a lot to be said for this in commercial entertainment games. It is not feasible for this project because of the time and expense involved in creating such movies. A recorded message serves the same purpose and is cheaper to produce. Granny's voice in the message is warm and friendly to reassure the children and motivate them to want to help her (this message is on the CD in examples\sounds).

The message establishes the motivation for the role-playing session in the virtual environment - Jenny and Daniel are to find their grandmother's friend, Fred, who lives somewhere in the virtual castle. The introductory passage is set in a nursing home for the elderly where the children are visiting their grandmother. The grandmother explains that she is bored and would like to have a visitor. The grandmother is a rather unusual character - there is a strong implication that she has magical powers. Her character is meant to strongly conflict with her situation in that her adventurous and wilful personality makes it difficult for her to accept her dull life

in a nursing home. Hopefully the role-players will pick up on this, and the motivation to find her friend to cheer her up will be greater.

3. Different User Experiences and the final conflict

Jenny and Daniel are split up early in the game. In story terms this is because they fall into one of Fred's magical defence traps which diverts them from the castle draw-bridge to other heavily defended parts of the castle. Jenny ends up facing a hungry slith on her own while Daniel arrives in a library far away from his sister.

Apparently luckily for him, this room also has Lady Searle in it and she knows how to lead him to his sister. After running away from the guardian, Jenny meets up with Fred who then tells her what is happening in the castle.

Interactions with Fred and Lady Searle will heavily influence the role-players' interpretation of events and their opinions of the other characters. These conflicting points of view will need to be resolved when the children meet each other again. They will need to decide who to believe and what the best course of action is.

Daniel is subjected to emotional blackmail at the hands of Lady Searle as she tries to convince him to help her. While Lady Searle is busy domineering Daniel, Jenny is having adventures of her own. Almost immediately, she encounters a creature whose task is to guard the castle. This creature, a slith, is rather dim and attacks her (bite first, ask questions later). She manages to escape the slith and stumbles on to a garden where Fred is working. Fred is suspicious at first and threatens her with his pet. If Jenny has the presence of mind to recognise Fred and explain who she is, Fred relaxes and apologises. If the player does not identify herself, Fred will "recognise" her because she looks like her Granny. Fred treats Jenny's slith bite with garden herbs and gives her the rest of the potion in case it is useful later. He explains that he can't come to visit Granny because of the threat of invasion from Lady Searle. He mentions that Lady Searle is very close (his pet Doggy can sense her) and that Daniel may be in danger. He sends Jenny off to find her brother and bring him back to the garden and gives her Doggy as protection. In a sense Jenny has the opposite experience to her brother. He meets an evil character who seems to be friendly to him, while her first impressions of the good character may be negative.

The final conflict comes when the role-players meet again after being split up. Lady Searle will have convinced Daniel to take her to the temple because she knows she can regain her power there. Fred will have suggested to Jenny that she should rescue her brother before he falls into the hands of the evil Lady Searle. Jenny has Fred's peculiar pet with her. Doggy can sense the presence of Lady Searle and wants to bite her and so he leads Jenny to the temple just as Lady Searle gets there.

Of course, it is difficult to anticipate what the users will choose to do in role. The user playing Daniel, for example, may choose never to pick up the book, or to abandon her before reaching the temple. There are a number of pre-recorded sound samples which were designed to encourage Daniel to stay with Lady Searle, using tactics ranging from pleading to threatening. If Daniel does leave her, then she can haunt him with her voice and potentially chase him into the temple as he tries to escape from the voice.

Doggy will act as a guide for Jenny, and will attempt to lead her to the temple. If she strays too far from the expected route Doggy can dig his heels in and refuse to go any further thus leaving her with no protection. The design assumes that the users will want to be where the narrative action is and that they will work out that most action is likely to happen around other characters. The training session is partly intended to make sure that the users will have exhausted the novelty of wandering and exploring the environment, and will be eager to complete the goal of the game.

Brother and sister eventually meet, and need then to make sense of their contradictory experiences. Jenny will know that Lady Searle can disguise herself and that Doggy evidently objects violently to the book. Daniel will not know the book's true identity and may have grown to trust Lady Searle. Further conflict will be built into this situation by Lady Searle's efforts to convince Daniel to believe her over his sister. Jenny also needs to tell Daniel that she has found Fred (the original goal of the game) but he cannot leave the castle until the castle is safe from Lady Searle. The children have to decide whose side they are on; this conflict requires some resolution. Whether the children take different sides or both side with Fred or even Lady Searle, there is likely to be significant dialogue as they try to reach resolution.

Relationships will be strengthened and weakened, and characters will be tested. It is hoped that this in-built conflict in the role-playing situation will have a positive effect on stories based on it in terms of the dialogue, relationships, moods and personalities of the characters depicted in the stories.

There will be a traditional fight between good and evil to finally resolve the tension and help the children achieve their goal of escorting Fred home to see their grandmother. This battle is discussed in the guideline on “valuable virtual lives”.

5. Difficult choices

Daniel faces some difficult choices on his own. Lady Searle is designed to seem nice with an undertone of nastiness. As events progress, the nastiness becomes more apparent and there are some clues which might alert Daniel to her untrustworthiness. Firstly, she asks him to kill a guardian for her. She does this quickly and urgently so that he might do this without thinking very hard about it. If the role-player considers this for long enough he might realise that there is something suspect about an acquaintance who expects you to kill on demand. This should be a difficult choice in itself. Secondly, Lady Searle’s true nature becomes increasingly apparent in her tone of voice and choice of words to Daniel. The choice that Daniel needs to make is whether to stay with her and trust her to help find his sister, or to leave her and try to find his way round the castle on his own.

Jenny also has to decide whether to trust Fred when he offers to heal her. There is a chance she might not - after all he was rather suspicious and nasty to her at first - but it turns out that trusting him is the right thing to do. Jenny is under less pressure to make difficult choices than Daniel until they meet again and need to make choices together.

Both children eventually have to decide whether to side with their sibling, or against them. For Daniel, there will be the extra pressure of deciding what he can do to help his grandmother if he sides with Lady Searle. If one or both of the children do side with Lady Searle, she will reveal herself in her awful glory, announcing her plans to take over the castle. If Daniel has decided to help her and has disregarded his sister, his loyalty to Lady Searle will be mocked by her, and she will threaten to kill Jenny

anyway and keep Daniel alive “for a while”. If the children decide to side with Fred then she will fly into a terrible rage and reveal her true identity. This “heads I win, tails you lose” scenario ensures that at the end Lady Searle will be pitted against the children and Fred in a good versus evil battle. This magical battle will take place between Lady Searle and the children, possibly with Doggy and Granny to help. The children can defeat the enemy on their own using the blue orb and this possibility is empowering for the children. After all, it was Harry himself who defeated the Dementor in the third Harry Potter book. However, there are other characters who will save the children if they do not save themselves. The outcome of this battle is predetermined; it was decided that good will always win out over evil. This is an ethical choice because of the age of the target group. For older groups it might be interesting to explore darker possibilities. However, the children do have an important choice to make during the battle. There will come a point where Lady Searle can be defeated by the children. She will beg for her life, but will the children let her live or die? They have to decide whether she can be trusted to keep her word and forget her evil plans if they let her go, or whether she should die to safeguard the future. The teacher in role will be able to help the children to arrive at a solution which seems right to them. The ending will be unambiguous. Either she will die, or will repent, or will be imprisoned. There will be no option for a sequel, nor will there be a false end and a reprise as there often is in horror films. It can be maintained that it is important for the children to experience a satisfying, safe closure to the story.

6. Valuable virtual lives

The game has been designed to make the users think very carefully about the value of the virtual lives they encounter. One aspect of this is the pace of the game, which is less frantic and “muscle twitching” than the usual shoot ‘em up game. The children will have time to think about their actions before carrying them out.

Another way of encouraging them to think of the virtual characters as people is to use dialogue and human voice to appeal to their emotions. It is surely far harder to

consider killing someone who is pleading with you than it is to kill a speechless, aggressive monster.

The role-players too have valuable virtual lives and are protected in the game. Their grandmother has told them that they can ask her for help, and even if they do not use this option, the teacher in role will never allow the children to die. As the discussion of MUD players in Chapter Four revealed, the loss of your virtual life can be disturbing if you have invested a lot of yourself into that life, and there is no need to upset the role-players.

7. A set of meaningful objects

There are few objects in the game and those that there are have significance to the players because they relate to other characters. The most obvious is the book, who actually *is* one of the characters. Another is the magic orb, which Lady Searle gives to Daniel to kill the guardian. Daniel may well wonder why an innocent person would just happen to carry about such a destructive object - the object reveals something of the owner's personality. Doggy also leads Jenny to a magical force field which can trap Lady Searle.

8. The role-play leader

In this particular game, the role play leader plays two parts, one good and one evil: she switches between playing Lady Searle and Fred. The leader has access to the location of the role-players and the messages they type. The leader chooses between selecting a pre-recorded sound sample in response to a player's message or typing a text message back. Playing two characters can be difficult to manage and this is why Fred himself is not present at the final show-down. The fact that the children are unlikely to be accomplished typists is of advantage here. The leader's typing rate should be fast enough to correspond with two children at a time. Choosing pre-recorded sound samples instead of typing will also speed this up. In the field study, the system designer was the leader because of her familiarity with the leader's interface and the characters.

5.4 Unreal Technology

This section describes the technology used to create Ghostwriter, and the manner in which the story ingredients described in Section 5.3.3 were implemented.

5.4.1 Overview of Unreal Technology

Ghostwriter was adapted from the commercial game Unreal, published by Epic Megagames in 1998. Unreal is shipped with the editor (UnrealEd) and scripting language (Unrealscript), and the game engine (the Unreal Engine), which were used to create the game. Epic Megagames aim to encourage the online gaming community to use these facilities to adapt and extend the original game, presumably to keep players interested for a while after they have completed it. Unreal Tournament, an updated version of the game particularly designed for multi-player gaming, was released in 1999, along with a new release of Unreal Ed. Unreal 2 is due to be released in 2001. The Unreal engine is considered to be one of the best first person shooter engines available (along with the Quake 3 engine) because of its superior graphics and powerful scripting language. It has been licensed by other games developers for games such as Wheel of Time, Duke Nukem Forever and Deus Ex.

As well as being suitable for commercial games projects, Unreal is an excellent virtual environment research vehicle because it abstracts the high level aspects of the game, such as character control, from the low level graphics and audio implementation.

This allows the researcher to concentrate on the high level research agenda without devoting extensive development time to creating a 3D world from scratch. Unreal and Unreal tournament are being used in a number of current research projects. For example, the Liquid Narrative Group at North Carolina State University are working on an interactive version of Beowulf; the VRND project have created a 90% accurate architectural model of Notre Dame cathedral; and Sykes (2000) has used Unreal for the development of software tools to assist users to find their way around virtual worlds.

The original Unreal game is a first person shooter with a slender plot. The user starts the game on a prison ship which has crashed on an alien planet. After escaping from the ship, the user rampages around the planet killing monsters of various shapes and sizes. The planet is home to the peaceful Nali people who are oppressed by a invading race called the Skaarj. At the end, the user can steal a ship from the Skaarj and escape from the planet. There are thirty-nine levels in the original game in which the scenery varies e.g. the inside of spaceships, icy caves, rivers and waterfalls, castles and fire pits. These levels can be altered using the UnrealEd level editor, or a new level can be created from scratch. Level editing is an extremely skilled job and there was no time to master it within the scope of this thesis. Instead, the most suitable level from the original game was selected and only the features which were inappropriate to the educational goals of Ghostwriter were altered. New features required by the conceptual design were added. The “Ruins” level was used. This level is visually stunning and structurally complex. In essence, it is an empty castle with an underground moat, a temple, a courtyard, winding staircases and an amphitheatre (see Figures 5-1 and 5-2 for examples of the scenery). Slaving monsters, weapons, and objects which were not relevant to the plot were removed, along with puzzles such as how to open doors. Sound samples of Lady Searle instructing Daniel where to go are attached to particular landmarks in the environment, and are triggered when Daniel walks near them. The landmarks, such as a statue or a tapestry, are easier to use for navigation than a series of instructions such as “Go right” or “Go left” and Lady Searle’s comments on them give some clues to her personality. The music is triggered to change at particular places in the environment, to build up an atmosphere, especially at tense moments.



Figure 5-1: The castle on Kirkmystery Hill.



Figure 5-2: The underground moat.

Unreal is packaged with complete Unreal scripts for controlling the behaviour of characters and objects in the original game. By adapting these scripts, it is possible to populate an Unreal level with characters and props appropriate to specific research goals. Unreal script was designed for specifying the behaviour of computer controlled game players (Sweeney, 1998; Poleg, 1998). The object-oriented nature of the language make it particularly useful for describing both general similarities in behaviour, and fine-tuning the differences in behaviour of different game entities. The state-based aspect of Unreal script is a powerful means of specifying transitions between different patterns of behaviour, given a particular game situation. Used correctly, the object orientation and the state based paradigm make it easy to build well-structured game characters quickly. It is, however, very difficult to debug character behaviours because of the interaction between states and inheritance. Another problem is that the thousands of lines of Unrealscript are not documented; learning how it fits together in order to change particular features is very time consuming.

Ghostwriter required a number of adaptations to the original game scripts. Scripts for several script controlled creatures and objects were altered. Fred's pet is controlled by a script. He is programmed to lead Jenny round the environment in search of Lady Searle. He follows a path defined by nodes placed at appropriate points in the environment. The slith monsters are also programmed to patrol certain cross-roads in the environment, and to attack if they meet Daniel or Jenny. They do not harm the characters' health although their movements are aggressive. They also chase after players although they are very easy to dodge. There is a blue orb which can be used to kill the slith monsters by a magical spell. The script that controls the blue orb ensures that it always hits the target whether the player's aim is correct or not. There is also a purple forcefield which can be used to trap Lady Searle.

5.4.2 Interface

This section describes the Unreal interface and discusses the limitations it places upon the virtual role-playing environment. The user controls her character using a mouse or arrow keys. She can move in three dimensions, subject to realistic gravity restrictions. She can run, walk, jump, look around, swim, crouch, shoot and pick up objects by using predefined keys. She cannot interact with computer controlled characters in any way save shooting at them. This is unbalanced because the computer controlled characters can play a wide range of sounds and animations; for instance, in the original game the indigenous Nali people beckon to the user, or cringe, and say things (in an alien language, admittedly) to indicate their mood. The user can interact with player characters by sending and receiving typed messages. The interface for this is shown in Figure 5-3.



Figure 5-3: The message sending interface.

This is a cumbersome interface. To enter message mode, the user presses the letter *t* on the keyboard. This brings up a prompt at the bottom left of the screen which reads *say*. The user can then type a message to the other players and then press *return* to send it. The other players hear a beep and the message is printed at the top left of their screen prefixed by the sender's name. Received messages fade from the screen quite quickly. There is a sent and received message history which can be accessed by pressing the apostrophe key. While this is a useful feature if the user has missed an incoming message, it is irritating when using an apostrophe as punctuation while sending a message. Although there was no time to change this interface before the field study, as discussed in Section 6.3.2, a redesign of the message sending interface is desirable.

5.4.3 Characters

In the original Unreal game, the user can choose his avatar from a selection of male or female characters. The three dimensional shape of the avatar is called the *model*.

The clothes, face and hair of the avatar make up the *skin*. Each model usually has a number of skins to choose from. The faces are simple; they are flat textures rather than three dimensional models. The avatars in Unreal are unnaturally macho looking with exaggerated body shapes (see Figure 5-4). They are unsuitable for an educational game so avatars created by a company called Geometricks were used.



Figure 5-4: An Unreal female looks in the mirror.

The original Unreal characters are hand animated by skilled games animators. This is another professional and artistic skill which there was insufficient time to acquire, so motion capture was used to animate Ghostwriter characters. The main benefit of using motion capture for the Ghostwriter project was that it generates very realistic, expressive gestures. Two actors and four children provided data at the motion capture studio at the Edinburgh Virtual Environment Centre to produce the game characters' animations. Movies of the animated characters are viewable on the CD at examples\movies.

Jenny and Daniel have avatars who look and move like children. The 3D models were bought from Geometricks, who sell a selection of 3D avatars. Care was taken when selecting the appearance of these characters because appearance would influence the extent to which users would identify with their characters and engage in the role-play. Characters who look child-like, but slightly sophisticated, were chosen. Jenny and one of the guardian monsters are shown in Figure 5-5. Daniel is shown in Figure 5-6.



Figure 5-5: Jenny and the slith.



Figure 5-6: Daniel.

Lady Searle is an elegant woman, rather like Cruella De Ville in appearance (see Figure 5-7).



Figure 5-7: Lady Searle is trapped in a forcefield.

Fred is a small green goblin with a passing resemblance to Yoda (see Figure 5-8). Fred's height was based on the suggestion of a storyteller who proposed that a child sized helper character would boost the morale of the children, because they naturally expect allies to be smaller than adult figures.



Figure 5-8: Fred and his Doggy.

The motion captured movements for Jenny and Daniel are walking, running, jumping and waving. Lady Searle and Fred have these movements as well as a set of more personality full, emotional gestures. Fred's movements, acted by Geoff Lee, include waving a walking stick angrily, yawning, patting his dog and nodding a friendly greeting. Mary Seymour acted Lady Searle's movements. Lady Searle walks haughtily, tosses her head, puts her hands on her hips challengingly, pleads, stamps her foot and brushes invisible specks of dust from her sleeves.

The original Unreal characters can make sounds such as screaming or grunting but they do not speak. However, the story design of Ghostwriter requires persuasive, believable and articulate characters, so speeches for the characters were recorded, to heighten the emotional impact of some of the plot points. The role-play leader's characters in Ghostwriter speak using pre-recorded sound samples. The sound samples were scripted collaboratively with the assistance of a storyteller and an actress. Lady Searle's voice, as recorded in sound samples by Mary Seymour, is

alternatively haughty and winsome and has drawling, Southern English vowels. The reason this accent was chosen is that the children at whom the system is aimed, have strong Scottish accents. The English accent is associated with formality and wealth. Fred's voice was recorded by Arnout Dalkman, a Dutch storyteller. Fred sounds absent-minded and friendly most of the time. He has the voice of an old man with a slight accent. The sound recordings can be found on the CD at examples\sounds.

The role-play leader can play the characters' parts through a combination of gesture, speech and typed messages. The mixture of text and speech is awkward but it has advantages. The reason for using audio samples for some of the interactions is that the human voice can be far more emotionally evocative than the written word. When Lady Searle needs to be at her most persuasive, the role-play leader can choose from a number of audio clips which convey the correct emotional message. For moments when she doesn't need to manipulate Daniel emotionally, the role-play leader can type lines. The audio samples seem particularly effective. Moving dramatic moments are not yet common in computer games. After listening to Lady Searle's chilling tones as she tries to manipulate Daniel into obeying her (against his better judgment) it becomes obvious how much emotional dialogue can add to games. ("You love your sister, I know. You wouldn't want her to get *hurt*, now would you?"). The emotional richness of tone provided by an accomplished actress combined with a feature which lets a role-play leader choose which sound clip to play at any given time, results in a compelling and involving story which is responsive to the users' decisions. However, it is impossible to write scripts to cover all possible situations the role-players might create. For this reason, the role-player leader can also type messages (in role) in response to the role-players' messages.

There are two other possible solutions to the problem of allowing the game characters to respond in a flexible yet emotionally rich way. One solution would be to transmit the role-play leader's voice over the computer network in real time. A voice version of Ghostwriter, in which an actress improvised the parts of Lady Searle and Fred, was recently evaluated in the field study described in Chapter Eight. A second solution would use speech synthesis techniques to output the text improvised by the role-play leader. However, further research is required to produce a speech

synthesis system capable of producing emotionally rich tones which also indicate personality. This is discussed further in Chapter Eight.

The role-players can only communicate by typing messages. The process of composing written language during the role-play is hypothesised to be an important part of the story preparation activity (see Chapter Two); this educational requirement makes channeling voice across the network a less suitable option for this purpose. In addition, one of the advantages of computer-mediated role-play is the anonymity of typed interactions. A role-player can convincingly play any role through written words alone, but it becomes more difficult to sound the part of a character of a different age, gender or species. If a suitable speech synthesis engine could be built, the role-players could send typed messages and hear them spoken as well as seeing the typed text. It would be particularly beneficial if the role-players could specify emotional tone for the message.

Similarly, although the role-play leader has a choice of gestures, the role-players currently have a more limited choice of movements. Firstly, only a limited set of child movements were captured: walking, running and jumping. The motion capture subjects for the child sized avatars were children and they found it difficult to move naturally under camera. This is not surprising, because subjects are required to stand on the spot while gesturing. Some of them also found it embarrassing. Secondly, even if it had been possible to obtain a full set of expressive gestures to convey mood for the child characters, designing an interface to allow children to select between these gestures would have been a sizable task. However, it might be useful future work.

5.5 Presence in Ghostwriter

This section highlights how the Ghostwriter environment is designed to evoke presence in users. It also discusses the tradeoff between plot and interactivity which was introduced in Chapter Four.

5.5.1 Perceptual Presence in Ghostwriter

In Chapter Four, it was claimed that the role-play environment would provide children with a rich sensory experience on which they could base their imaginative stories.

Perceptual presence is the illusion that a virtual reality experience is perceptually real. The more often the children experience perceptual presence during the role-play, the more realistic the experience will seem. The graphics, music and sound effects in Ghostwriter are intended to heighten perceptual presence.

The textures in Unreal are high resolution and visually appealing. They have a combination of realism and artistic style which adds to the fantasy atmosphere. The Geometricks character models look more detailed (have a higher polygon count) than the original Unreal models and thus expedite the focus on character in the Ghostwriter game. The characters are animated with motion capture data to make them seem more realistic. The level is very big; it takes over forty minutes to traverse the main places in the environment. Even if the user finds the main places in the environment, there are a number of secret passageways and hidden rooms which take longer to find. The size of the environment adds to the realism; users have the impression that they are in an unbounded space. The environment is also responsive to the user's actions; he can interact with objects in a similar way to the real world; for instance, by pushing a box into the water.

The Ghostwriter sound effects also add to perceptual realism. There are environmental sounds such as water lapping, birds tweeting or gates clanging shut. There are also appropriate voices for two of the characters which sound realistic rather than cartoon-like. These are "diagetic" sounds; the source of the sound can be found in the environment (although when Lady Searle is the book the user must make the connection that the book is speaking). The environment also has non-diagetic sounds for which there is no visible source in the environment; for instance Lady Searle can speak to Daniel even when she is not physically there; her voice can follow him around. Another source of non-diagetic sound is music. Different tracks are triggered at points in the environment where the pace of the plot changes, such as

where a more exciting episode begins. In films, diageitic and non-diageitic sounds are generally considered to feed the illusion that the film events are real, even although the non-diageitic sounds are not realistic. The music for Ghostwriter is taken from the selection of tracks in the Unreal editor. Robertson et al. (1998) describe a spooky music generator (named Herman after Bernard Hermann who composed music for the Hitchcock films) which was designed to dynamically increase and decrease the tension in music as the user required it. Herman was originally designed for use with the Ghostwriter environment as a tool for the role-play leader. When the role-play leader wanted to increase tension in the improvisation, she would instruct Herman to generate spookier music. Although Herman was an impressive AI composer, the technology was not compatible with the Unreal sound system, and there was insufficient time to integrate the two systems. Examples of Herman's music can be found on the accompanying CD at examples\herman.

5.5.2 Social Presence in Ghostwriter

Social presence is defined as “the extent to which a medium is perceived as sociable, warm, personal or intimate when it is used to interact with other people” (Lombard and Ditton, 1997). Section 4.2.2 discussed how Ghostwriter users must feel social presence in order to learn from the role-play. The role-players should be able to imagine how the game characters think and feel and for this, the characters must seem real. Evidence from other text-based media such as IRC or MUDs suggests that members of online communities can experience social presence to the extent that they form warm and intimate relationships with other members (see Section 4.3). Although the normal social context, as expressed through facial expression, tone of voice, appearance and gesture is missing, social cues are reconstructed through words alone. In IRC, “Emote” commands are used to convey textual descriptions of actions which add information to the dialogue. The action descriptions may be a counterpoint to the dialogue e.g.

Judy: Of course I don't mind helping!

<Judy grits her teeth>.

To experience the most fulfilling interactions in a text based environment, users must be quick and fluent at expressing themselves in writing. They must also be quick to read and interpret other people's messages and action descriptions. The skills required for successful MUDing are similar to those required for creative writing and close reading of literature. However, Ghostwriter is intended for eleven year olds with a range of reading and writing ability levels. Some of the children may have difficulty reading the text messages quickly, and they may also have trouble interpreting subtle personality cues and moods indicated through text based descriptions (this latter skill is taught as part of close reading skills in later years of the curriculum). For this reason, Ghostwriter is not purely text based. Some of the back channels of communication which are missing in text-based virtual environments have been restored. Instead of text based descriptions of the characters' appearances and actions, the characters have a graphical appearance e.g. role-players can see that Lady Searle is tall and regal and that she walks in a proud way. People are used to inferring personality from appearance, clothing and characteristic movements. Instead of inferring tone of voice from the content of the message, the role-players can hear the characters' voices. The voice gives information about mood and personality in a familiar way. The role-players can learn about the game characters through the text messages and their appearances and voices. The extra visual and auditory cues will help the role-players to experience social presence.

5.5.3 Self presence in Ghostwriter

If an experience in a virtual environment evokes an emotional response in the user, the user has experienced one form of self presence. Self presence is required for the role-playing exercise because the role-players will empathise more with the game characters if they feel emotions about the game events or the moods of the other characters (see Section 4.2.3).

Lady Searle and Fred, as portrayed by the role-play leader, are intended to provoke emotions from the role-players. Lady Searle is sometimes ingratiating, sometimes haughty, sometimes threatening and sometimes furious. The sound clips contain a variety of extreme emotions and provocative content which are intended to elicit an

emotional reaction from the children. For example “I’ve done so much for you. Is this how you repay me?” (in a cross, bitter tone). Fred is less provocative, but he is mostly reassuring and friendly. He is there to evoke positive emotions, for example by praising the role-players for being brave and by worrying about their safety. For example “It was so good of you to drop by today. I couldn’t have fought the evil without your help.” A transcript of the sounds can be found in Appendix A. The sound recordings can be found on the accompanying CD at examples\sounds\. Fred also provides a degree of light relief by looking and sounding funny.

The plot of the game is also intended to evoke emotions in the role-players. First of all, when they are separated they may be apprehensive because they are suddenly alone. They might be frightened by the slith monsters. Jenny might be relieved to find Fred and Daniel might be pleased that Lady Searle can help him find his sister. The final scene where there is a showdown between Lady Searle and the children may be exciting and tense. Finally, the music was selected to heighten the user’s emotions by increasing and reducing tension.

5.5.4 Interactive plot in Ghostwriter

The tradeoff between plot and interactivity in computer games was discussed in Section 4.5.2.1. Interactivity in a game implies that the user has the freedom to do what he wants, while a game with a plot needs to constrain the user to perform actions which have relevance to a predetermined storyline. Mateas (2000) proposes a theory of interactive fiction which identifies the conditions which are necessary for the user to experience agency while taking part in a story. When the formal and material constraints of a game are balanced, the user is most likely to experience agency. The formal constraints are the possibilities for action suggested by the plot. The material constraints are the possibilities for action allowed in the environment. In Ghostwriter the formal constraints on the user are the story ingredients and background to the story (see Guidelines 1 and 2). The users know that the goal of the game is to find Fred, and further formal constraints are revealed to them as the role-play progresses. For example, Daniel has the possibility of accepting Lady Searle’s offer to help Daniel to find his sister. Jenny has the possibility of warning her brother

that Lady Searle is dangerous. Both the children have the possibility of trapping and possibly killing Lady Searle.

The material constraints in Ghostwriter are different for the role-players and the role-play leader. The role-players can walk, run, swim, jump, pick up objects and send and receive spoken messages. They can also hear sounds. The possibilities offered by the material constraints match those offered by the formal constraints in many cases. For example the role-players might have to **swim** along the underground moat to reach their sibling if they don't manage to **jump** into the enchanted boat. The only objects they can **pick up** are important to the plot e.g. the book, and the magical forcefield. **Sending** and **receiving** messages is necessary to exchange plot information with the other role-player and to respond to the game possibilities presented by the role-play leader's characters e.g. to respond to Lady Searle's threats. The role-play leader can also express her characters through gestures and pre-recorded sounds. She has more material possibilities because her influence in the plot is greater. She presents plot points to the role-players through Lady Searle and Fred. The plot points are related to the personality of these characters and so the role-play leader has more ways of expressing these personalities (see also discussion in Section 5.4.3). The material constraints for the role-players and the role-play leader are not balanced; the role-players can hear Lady Searle speak but they cannot speak themselves. The reason for this is that composing written dialogue during the role-play is hypothesized to be an important part of the story preparation activity. See Section 5.4.2 for further discussion of the issue of typing and speaking messages.

5.6 Summary

This chapter described the implemented virtual role-playing environment. The content of the game is based on guidelines for suitable content drawn from the Harry Potter books and educational practices in story drama and creative writing. The game is story based; the plot emerges from the interactions of the role-players with the pre-defined story ingredients of characters, setting and conflict between characters. The Ghostwriter story is set in a ruined castle, which Fred and Lady Searle are struggling to control. The role-players are sent by their Granny to find Fred and once they are in

the castle, they become caught up in the conflict between the other characters. The guidelines specify that the game content should be morally responsible and require the role-players to make morally challenging decisions. There is no gratuitous violence in Ghostwriter; any killing in the game is a major event with consequences. One of the decisions the role-players must make is whether to kill Lady Searle to prevent her from taking over the castle. The role-players characters are protected by Granny and Fred in the game and so they cannot die.

Ghostwriter is implemented using the Unreal Engine. The ruined castle is an adaptation of the Unreal level "Ruins". The character models and motion captured animations are designed to be expressive and realistic. Pre-recorded sound samples for Fred and Lady Searle are designed to convey emotions and personality to encourage the role-players to believe in the characters and get involved in the role-play.

The environment was designed to evoke presence in users. The graphics, sound effects and music are designed to evoke perceptual presence. The perceptual realism and artistic effects contribute to a rich sensory experience upon which the role-players can base their writing. The text-based interaction with game characters, coupled with expressive voice recordings and personality rich gestures are intended to evoke social presence. The hypothesis is that interacting with believable, colourful characters will help the children to write stories with better characterization. The role-play leader can elicit emotional responses from the role-players through the characters of Lady Searle and Fred. Engaging plot events and atmospheric music are also designed to evoke emotion or self presence. The story ingredients in Ghostwriter and plot points delivered by the role-play leader correspond to formal constraints in Mateas' theory of interactive drama. These match with the material constraints of the virtual environment. On this basis, the role-players should experience agency during the adventure; that is they should have the satisfaction of taking meaningful actions and seeing the results of their decisions (Murray 1997, p. 126).

The evaluation of the Ghostwriter environment and the extent to which it evokes perceptual, social and self presence are described in Chapter Six – System Evaluation.

6 System Evaluation

6.1 Overview of Evaluation

As we have discussed, the virtual role-playing environment is intended to be a motivating preparation activity for writing imaginative stories. The game was intended to be as much fun as the commercial games the pupils are used to. The theme of the game and the activities within it were designed to be educational yet interesting. The virtual role-play environment aims to improve the characterization and setting in children's stories. The experience of using the role-play environment and writing a story based on the adventure is intended to help to raise the pupils' self esteem, and to develop empathy skills. Thus, one evaluation question is whether Ghostwriter motivates the children; a second question is whether it has an educational effect. In this chapter the motivational aspect of the game is considered. The next chapter analyses its educational merits. Section 6.1.1 describes the school environment where the user and educational evaluations took place.

In Chapters Four and Five, the educational objectives of the virtual role-play environment were related to physical, social and self presence. The graphics, sound effects and music of the role-play environment were designed to evoke perceptual presence. Interactions with the other role-player and the game characters are intended to evoke social presence. The role-play environment is also intended to evoke self presence through emotional engagement in these interactions, and through the atmosphere conveyed through music and lighting. Evidence relating to the levels of social and self presence experienced by the role-players comes from the log files of the typed interaction between the role-players, and answers from questions asked during the debriefing session after the role-play. This is part of the educational evaluation described in Section 7.2. The extent to which the role-players experienced physical presence was not directly evaluated during this study, although observations and interviews with the pupils suggest that they found the environment visually appealing and engaging. However, a further study of the virtual role-play environment which addresses this issue was conducted in November 2000 in collaboration with Tim Marsh from the University of York. The evaluation method

was based on Marsh et al.'s theory of effective interaction in virtual environments (2001). The study is briefly outlined in Chapter Eight.

6.1.1 Field Study Setting

The field study for this thesis work took place at a state funded primary school in the town of Kirkcaldy, Fife. Two primary seven classes and one primary six class took part. The average age of the participants was eleven years and four months, and the standard deviation was 5 months. Mrs Munro, a retired teacher who works regularly with the pupils, assisted with the experimental treatment. The study was planned with a pretest-posttest with control group design. The intention was to gather pretest stories for control and experimental groups and to compare these stories to the stories written after control and experimental conditions respectively. There were twenty-one pupils in each group. The experimental design is described in more detail in Section 7.3.

6.1.2 User Evaluation Overview

The rest of this chapter focuses on the user evaluation of the system. Because Ghostwriter is based on commercial games technology, it should be as appealing to the senses as the games children are familiar with. The question is whether the children find the game content as motivating. Ghostwriter is based on communication and interaction between characters rather than on action and violence. Do children enjoy the Ghostwriter style of interaction? Section 6.2 uses data from interviews with the children about their favourite computer games and their opinions about Ghostwriter to answer this question.

From a usability perspective, it is also necessary to discover whether the users successfully mastered the interface. Section 6.3 covers interface issues and suggestions for bug fixes and redesign.

Another evaluation question concerns the effectiveness of the plot design. Did the plot episodes unfold as they were designed to? Did the plots experienced by the role-

players match the original basic plot design? These questions are addressed in Section 6.4.

6.2 User Evaluation of the game

That was so cool!

Steven, age 11

This section addresses the questions “Do children find Ghostwriter motivating?” and “Do children enjoy the Ghostwriter style of interaction?”. These questions are answered using data from interviews with the children about their opinion of Ghostwriter.

The game was designed to harness the motivational effects of commercially available games for educational purposes. The look and feel of Ghostwriter has a lot in common with other games, particularly in the first or third person shooter genre. “Look and feel” refers to the resolution, quality and style of the graphics and the method for controlling the avatars. However, the game activities are different. Instead of typical game activities like shooting monsters or picking up objects, Ghostwriter activities focus on interactions between characters. How do the children respond to this interaction style? Does its style compare favourably with that of their favourite commercial games?

The “Prior computing experience” section gives background on the prevalence of computers in the children’s homes and the sorts of games they enjoy playing. In the “Opinions of the game” section, questions about the motivational effect of the game are answered. The reasons for enjoying Ghostwriter are compared with the reasons for enjoying favourite games at home in an attempt to determine whether the Ghostwriter interaction style compares well with more common interaction styles.

6.2.1 Prior computing experience

Pupils were interviewed in order to gauge their prior experience with similar games before they started the virtual role-playing sessions. This information helped to determine the length of the training session. It is of interest to relate the answers here because it gives an indication of the prevalence of home computers or games consoles; games played by children of this age group; and their reasons for enjoying particular games. These indicators could be used in the design of future role-playing environments. It also helps to show how far the Ghostwriter interaction style deviates from other games. Data was gathered from forty-two of the children in the pilot, experimental and control groups.

6.2.1.1 Computers at home

The first question was “Do you have a computer or a Playstation at home?”. Most children had access to computing facilities at home - only 7% of the children has neither a PC or a Playstation. The most common answer was that the pupil had both a computer and a Playstation at home.⁴ In terms of this field study, the effect of this prior exposure to computers was positive because the children were experienced and confident users of computer games. However, this information has wider implications for computer assisted learning in this school. Class teachers and an IT support teacher at Sinclairtown Primary School were previously concerned about computers widening the gap between pupils from different home backgrounds. They felt that children with computers at home had an unfair advantage when it came to homework assignments and project work. They also thought that home computing experience helped pupils to use school computing facilities more effectively. The survey results indicate that the majority of the pupils have access to computers for their homework assessments; the remaining pupils could be offered extra time at the school computers. It has been suggested that an after school computing club be set up for this purpose.

⁴ The prevalence of home computers is surprisingly high, but it is consistent with the figures obtained during a recent study with the virtual role-playing environment at another primary school in Fife where 96% of the class had access to home computers.

Computer only	Play Station only	Both	Neither
9	13	17	3

Table 6-1: Computers at home.

6.2.1.2 Favourite computer games

Pupils were asked “Which computer games have you played?”; “Which is your favourite?” and “Why?”. The intention was to discover the range of games and interaction styles the children were used to and the features of games which they enjoyed best. This information should be useful for designing future role-playing environments for this age group. It is also useful to establish how novel the Ghostwriter interaction style was to the players.

The children mentioned sixty-six different titles in a wide range of genres. Figure 6-1 summarises the frequency of games in each genre. Some of the more obscure titles could not be classified. The titles are difficult to classify exclusively as there is some overlap between genres.

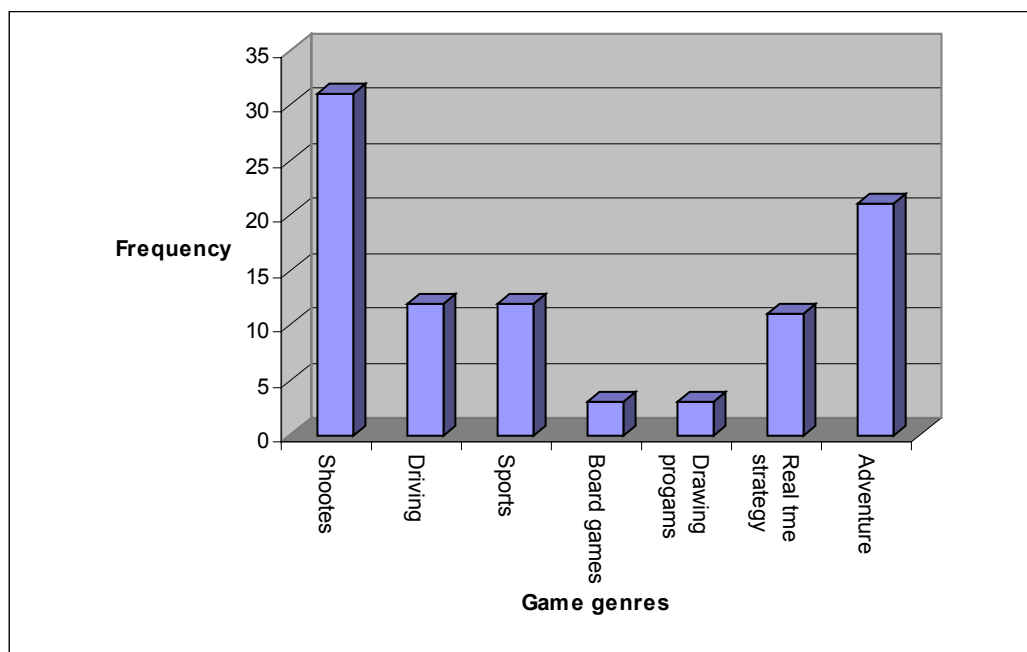


Figure 6-1: Favourite game genres.

The first or third person shooter genre was most popular. Games within this genre are typically violent. Game activities include shooting non-player characters, shooting player controlled characters, killing monsters and avoiding being killed. Some games in this genre may also have an element of puzzle-solving or a tactical element. These activities contrast with the character-oriented activities in Ghostwriter. Titles classified in this genre include: Unreal, Unreal Tournament, Delta Force, Quake, Resident Evil and Tomb Raider. Tomb Raider was the most popular title in this genre (eleven mentions) and it was most frequently cited as a favourite game in this genre (three times). The reasons given for enjoying these games in general made reference to violence e.g. “You get to shoot zombies”, “You can kill your friends”, “You can get to go on top of trams and kill people but not the innocent. Well I don’t.”, “You get to shoot people”. There was a wider range of reasons for liking Tomb Raider: “It has more hero things”; “Lots of action”; “Lots of levels”; “You have to work out puzzles”; “Realistic graphics”. Players of Delta Force enjoyed the Internet game play, the SAS theme and the missions to destroy information. The popularity of this genre, and the titles mentioned by the children give some cause for concern because of the level of violence depicted in them. The more violent games, such as Unreal Tournament and Quake are intended for older teenagers – they bear a 15+ certificate from The European Leisure Software Publishers Association (ELSPA). On the other hand, the most popular game in this genre, Tomb Raider, is not excessively gory.

Adventure games were the next most popular genre. This genre aimed more at children than the shooting games. Typical game activities include collecting objects and dodging obstacles. Examples of this category are “Spiro the Dragon”, “Crash Bandicoot” and “Croc”. There were fewer titles in this category, but each of was very popular. Crash Bandicoot was the most popular game overall (fourteen mentions) and it was most often judged as the children’s favourite game overall (eight children). The reasons for liking Crash Bandicoot were “The characters are fun”; “There are different levels”; “There is an evil professor”; “You can explore”; “You have to work out problems”; “The game is arranged so that sometimes you are Crash Bandicoot and sometimes you are his sister”. Some of these reasons are character related and some of the activities mentioned also appear in Ghostwriter.

This genre has more in common with Ghostwriter than the first or third person shooter genre. However, adventure games have less of an emphasis on communication between characters and decision making.

Driving games, including motor rally games and less responsible urban driving sprees, were also popular. Titles in this genre include Motorcross Madness, Grand Theft Auto, Driver, Need for Speed and International Rally. The main purpose of these games is to drive an onscreen car very quickly. There is no clear favourite in this category, as many of the children just mentioned “racing car games” rather than specific titles. Reasons for liking the games were “You can drive about really fast”, “You can do skids and you’re chased by the police” and “There’s a good feeling when you’re racing and you win”. Some commentators have expressed concern over the potential for such games to promote dangerous driving (see Chapter Four, Section 4.5.3). This genre is very unlike Ghostwriter and there are no common activities.

WWF Smackdown, Wrestleman and Fifa 2000 come under the category of sports games. These games vary in style, from controlling a wrestling champion character, to managing a football team. The common theme is their relation to sport, particularly televised large sporting championships. WWF Smackdown was the most popular in this genre (four mentions) and was the favourite game for two children. The reasons given for enjoying it were “It’s wrestling”; “You can pick up chairs and throw them”; “It’s hard to play”. Sports game activities are again very different from Ghostwriter activities.

Games in the real time strategy genre include Sim City, Age of Empires, Red Alert and Command and Conquer. These games require the user to build up complex structures, such as a generating plant, a city or an army, over a long period of time. There is a large element of strategic planning. The most popular game in this genre was Age of Empires (three mentions). It was the favourite game of one child because: “You make your own city. You kill animals to survive and there’s lots of blood”. Reasons for liking similar games were “It is realistic”; “It’s in the present day” and “I like games I have to think about”. The game activities in this genre are at

a higher level than Ghostwriter game activities. While strategy games often involve reasoning about large groups of people (an army or the population of a city), reasoning about the people's feelings or attitudes is not usually important.

Drawing programs and board games are more traditional children's past-times. The board games were conversions of physical board games such as Monopoly. The drawing programs included some cartoon activities as well as standard features.

6.2.1.3 Summary

Some children picked games which coincided with real life interests, such as football, or popular culture. Many of the games the children mentioned were related to films, books or television series, e.g. Pokemon; 101 Dalmations; Virtual Springfield; 007; and Star Wars. The most peculiar reason for enjoying a game was for Big Foot – "Because I want to be a chiropodist and I like feet".

There were similar reasons for liking games across genres. Enjoyment of violence was cited as a reason for liking first or third person shooters, some sports games and some real time strategy games. Other common reasons for liking games were that they had some element of adventure, they had different levels, the player could collect objects or avoid obstacles or could they move around in the game world.

It is useful to compare two of the most popular games to Ghostwriter. Are the plots and game activities similar?

One of the more popular games was Tomb Raider and sequels (Core Design, 1996). The user plays Lara Croft, an archaeologist. Lara is an extraordinarily fit and hardy individual who is capable of fighting off a selection of wild beasts in her journeys to protect ancient artefacts from the "baddies". Wild beasts, monsters and henchmen are some of the obstacles the player must deal with on her missions. Other obstacles come from the environment (swamps or heavy snow) or puzzles. The user requires physical co-ordination to negotiate all these obstacles. A large amount of time is devoted to shooting at them. Although the look and feel of Tomb Raider is similar to Ghostwriter, the game activities are not. Lara Croft is a strong character but she has

mostly been developed *outside* the game through advertising and marketing. Tomb Raider is not, in fact, a character based game.

The most popular game was Crash Bandicoot and sequels (Naughty Dog, 1998). In the first game the user plays a bandicoot named Crash who was created by the evil Dr. Neo Cortex. Crash has been evicted from the island where Dr Cortex conducts his nefarious experiments. The user's task is to go back to the island to rescue Tawna, Crash's lady friend. The rescue is effected by progressing through a series of levels by collecting gems, coloured gems and keys. Each level contains a series of nasty creatures which must be fought off, such as Koala Kong and Ripper Roo. This game is motivated by relationships between the characters and the violence is cartoon style. It is closer to Ghostwriter than Tomb Raider for these reasons, although the graphics and controls are different. The goals of Crash and Ghostwriter are similar – to find a friend. However, Ghostwriter has more communication between characters and more decision points. The users can influence the course of the plot and the fate of the characters.

The children have experience of computer games with similar look and feel to Ghostwriter, and some have played the game on which it is based. The most popular game, Crash Bandicoot, has similar plot goals to Ghostwriter but the game activities do not focus on interactions between characters.

6.2.2 Opinion of game

All sixty children, in the pilot, experimental and control groups, enjoyed playing the game. They thought it was “fun”, “brilliant”, “excellent”, “really good”, “great” and “cool”. Several of them asked for another go at the game, and those who played the game in the pilot stage were disappointed not to play the stable version. Some children said they would buy it if it were available. All of the class teachers, a learning support teacher and the head teacher tried the game, and some of them watched the children playing it. All of the teachers could see the benefit for the children, although some expressed reservations about playing it themselves because of their lack of experience with computers. They felt that the children were the real computer game experts. They took longer to learn the controls than the children and

were more tentative at moving around (this resulted in a shark eating the head teacher!) However, there was more dialogue because they could type faster.

To establish the features of the game which appealed most to the children, and discover any features which they disliked, we interviewed as many of the children as time permitted (twenty-nine children).



Figure 6-2: A pupil plays Ghostwriter.

6.2.2.1 Likes

The reasons the children had for liking the game fell into four main categories (see Table 6-2).

	Sending messages	Finding a character	Navigation	Objects	Other
Number of comments	15	8	6	3	6

Table 6-2: Reasons for liking game.

The most frequent reason for liking the game was sending messages. For example “It was really good when you had to write things to your sister.” “I liked speaking to the witch woman and sending back sarcastic messages. You can contact your partner.”

There were fifteen unsolicited comments about typing messages in twenty-nine interviews. That is, these comments were made before subjects were specifically asked what they thought about sending messages. This suggests that children enjoy games which involve communication. It is encouraging that none stated that they would prefer the more traditional, violent style of game instead.

The second most frequent reason for liking the game was that the goal of the game was to find either Fred or the other role-player. Eight out of twenty-nine participants mentioned this e.g. “Going about looking for Fred”, “You have to go and find all the people”, “Looking for Fred and Daniel”.

Another frequent set of reasons for enjoying the game were associated with navigation around the environment. Six out of twenty-nine participants commented on navigation. Some of these comments were to do with the computer controlled guide characters - “The computer tells you where to go”, “A book told me where to go”.

The children also enjoyed collecting and using the limited number of objects in the game. Three people mentioned that they liked objects such as the purple force field. This was also a popular reason for liking commercial games.

Other enjoyable parts of the game were killing the witch, the graphics, the lack of gore, deciding what to do, swimming and riding in the boat.

6.2.2.2 Dislikes

We also asked each pupil what they disliked about the game. The comments are summarised in Table 6-3.

	No dislikes	Bug related	Typing	Other
Number of comments	17	2	3	7

Figure 6-3. Reasons for disliking game.

Seventeen of the twenty-nine children we interviewed said that they liked everything about the game. Two participants said that they disliked problems with the game that arise from bugs (getting stuck and not being able to see messages). Two people suggested that the typing could be simpler, and one said that she couldn't keep up with the typing. Other dislikes of the game were "I kept getting scared", "I didn't like waiting around", "I missed the boat", "I didn't like the thought of Fred as an alien thing", "I would have liked to see myself (as in 'Tomb Raider')"⁵, and "It was freaky when the witch showed up and interrupted our conversation."

It can be seen that most of these dislikes are fairly minor. Many of the dislikes could be addressed by fixing the most irritating bugs and improving the interface for typing (See Section 6.3.2).

6.2.2.3 Discussion

It is interesting to compare why the children liked their favourite games to the reasons they gave for liking Ghostwriter. It gives some idea of how children compare Ghostwriter to commercial games, although a more systematic study would be required to investigate this issue thoroughly.

Firstly, it was clearly difficult for the children to articulate why they enjoyed games they played at home, beyond the level of "I just like it". In contrast, each child came up with one or more specific reasons for liking Ghostwriter. Obviously, it is easier to remember specific details of a game one has just played. On the other hand, the children will have spent many hours playing their favourite games at home. Over half the children mentioned that they enjoyed the message sending in Ghostwriter and that this is not common in stand-alone versions of their favourite games. A further study is required to determine whether the children thought there were more enjoyable features in Ghostwriter, or whether there is a strong effect from recent exposure to a game.

⁵ I.e. She would prefer third person view to first person view. First person view caused some confusion at first especially with the teachers because the user cannot see himself represented in the game world. In fact, it is possible to switch between first and third person in Unreal.

Secondly, the range of reasons for liking Ghostwriter was different. The children enjoyed the adventurous aspect of Ghostwriter, as with other games. Activities such as picking up objects and moving around in the game world were popular in Ghostwriter too. However, the most frequent reasons for liking the game were character related – sending messages and finding game characters. The children enjoyed the Ghostwriter style of interaction. One of the boys volunteered that his favourite game was now Ghostwriter. He said :

“[it has] game play you can get into very easily and you can’t stop. The way you can play and you can speak to your friends. It was you who controlled the game.”

Ghostwriter lacks the violence common to many of the titles the children play at home. A few of the children commented on the lack of violence but did not appear to yearn for it e.g. “I thought there would be more shooting but I still liked it”. Even the children whose normal diet of games was particularly bloodthirsty were enthusiastic about Ghostwriter. These findings suggest that the games industry might have a market if they chose to extend commercial game genres to encompass socially responsible, educational, character based games.

6.3 Ease of Use of Game Controls

One concern raised before the pilot studies was that the children would find it difficult to use the game controls to move around the environment. Experiences helping adults learning to use the game for the first time suggested that the children might take some time to get used to the controls, and progress very slowly through the level. Negotiating stairs and swimming were particularly hard for some adults. Fortunately, none of the sixty child participants had any major difficulty with the controls, and in fact it was necessary to reduce the maximum speed of the avatar to prevent them rushing around too fast. 93% of the children had experience with PCs or PlayStations: many of these had played first person shooter games before and 3 children had played Unreal itself. This level of familiarity with the interaction style meant that the children could learn the controls after a very short training period, and

that difficulty with the controls did not interfere with the educational goals of the game.

Observations of the role-play sessions, and data from interviewing the children after playing the game bring to light a small number of user interface problems. These problems can be split into *moving* problems and *message* problems and are discussed below.

6.3.1 Moving

Swimming caused some difficulties. Near the end of the game one of the children must swim through a moat and climb out of the water at a small landing stage. The landing stage area is small, and it is difficult to jump from the water onto the landing stage without falling under the landing stage and hitting one's head. The role-play leader had to rescue a number of players from that situation during the sessions. This could be fixed easily by extending the area of the landing stage.

Another common problem was selecting the correct inventory item. This problem was largely due to a bug in the inventory code, which meant that sometimes inventory items became invisible and unselectable. This was problematic because two of the items were important to the plot of the game. Again, this is a simple bug to fix.

Another bug related control problem occasionally caused the player to get stuck to the spot, or continually bang into a wall. This problem can be overcome by using the cheat code "fly" to levitate the player for a short time, and then typing the cheat code "walk" to return the player to the ground. This would be a difficult bug to fix because it arises from the heart of the Unreal engine code. Fortunately it occurs infrequently.

6.3.2 Sending Messages

There were a number of problems associated with message sending and receiving. These were caused by user error, interface glitches but more significantly, by the poor interface design of the messaging feature in Unreal.

Firstly, the children occasionally got frustrated because they forgot to press the “say” button before beginning their message. They would type a whole message and then wonder why it hadn’t reached their partner. The Unreal Engine requires the user to press ‘say’ to distinguish the messages from cheat codes or other console commands. This could be easily fixed.

There is debugging aid in the Unreal Engine which turns on a scrolling frame rate display at the top of the screen where the messages normally appear. This debugging tool is switched on with a certain sequence of key presses to the console, and occasionally a user would turn it on by mistake, thus obscuring their messages. The afflicted user is still able to type messages, but cannot read them. Unfortunately, it has not been possible to find the offending key sequence or discover how to turn it off again. If this occurred during a session, the observer had to read out the messages from the other role-player’s screen.

There are a number of problems associated with the messaging interface design. These problems are all inherent to the original Unreal game; the interface was not re-designed for Ghostwriter because it would have required tedious and time-consuming re-coding.

A message which the user is currently typing appears at the bottom left of the screen in green capital letters. The standard font is small, and some of the adult users had difficulty reading them. This could be altered easily.

The incoming messages are displayed at the top left of the screen in green capital letters. These messages appear for a short period, accompanied by a beep, and then fade away. The problem is that slower readers miss incoming messages. It is possible to recover these messages by pressing the apostrophe key. This causes the console to increase in size while the display of the environment shrinks. A history of all the previous messages is displayed in green capital letters in the increased console window. Thus, an associated glitch is that every time apostrophe is pressed, the screen display changes. It is wiser to forgo punctuation to avoid this.

A problem with text-based computer-mediated discussion tools of this sort is that the user has to switch her attention between reading incoming messages and constructing outgoing messages (Robertson, Good and Pain, 1997). This is exacerbated by the current Unreal interface because the incoming and outgoing message display are split up on screen. Three users mentioned that this task switching was difficult.

It seems likely that there is a relationship between typing speed and the quality of role-playing in the game. One user had extremely good keyboard skills and was able to type more than her peers, and concentrate on what she was typing instead of how to type it. It was also noticeable that computer literate adults were able to express themselves more easily and more creatively than those who struggled with typing.

The children who have literacy problems found the message sending and reading difficult. This was compounded by the fact that most of the children were slow typists. The observer helped by reading out the messages, and helping them to find elusive letters on the keyboard. What is surprising about this is that they all persevered without complaint. They were sufficiently motivated by the task to continue in spite of their difficulties. Even a pair of children who had been assessed at level A (the lowest level) of the curriculum managed to complete and enjoy the game in spite of their literacy difficulties.

This suggests that real time computer-mediated communication might be a useful literacy aid, as well as a method of improving keyboard skills. Previous experience helping various groups of children to use CMC suggests that children love to communicate using computers. This level of motivation helps to overcome their normal dislike of writing or typing. It suggests that the current classroom practice of using computers as type writers and setting simple typing exercises using AlphaSmart⁶ keyboards could be improved upon.

In conclusion, the children managed the game controls very well. There were a number of bugs in the game which caused minor control and messaging problems. Most of these bugs can be fixed easily. A more significant problem is the design of

⁶ Alphasmarts are handheld word processing devices used for typing practice in Fife schools. Text can be downloaded from an Alphasmart into the class computer.

the Unreal messaging interface; this requires a careful re-design. Children with lower literacy attainment found it more difficult to deal with sending and receiving messages, but were sufficiently motivated by the task to persevere.

6.4 Evaluation of Plot Design

As well as considering user's opinions of the game, it is also useful to evaluate how well the original plot design worked in practice. The game was designed to have a number of key and optional plot episodes, The key episodes are necessary for the final decision making scene. The optional episodes add something to the plot but were not necessary to understand it.

- Experience from playing the game with thirty pairs of pupils reveals that some key episodes from the original design were actually optional; that the implementation of some of the plot episodes was flawed; and that several unanticipated plot episodes arose. The fact that the role-play sessions (and the stories based on them) all had a coherent plot line is a testament to the flexibility of the basic plot design and an interaction style where the human role-play leader can recover from plot deviations through improvisation.

The sections below list the revised key and optional plot episodes; review unexpected plot episodes and expected episodes which didn't ever happen; and briefly suggest some plot episodes which should be included in future versions. Frequencies of plot episodes, based on data from analysis of twenty-one log files, are indicated.

6.4.1 Key Plot Episodes

The following key plot episodes happened in all of the role-playing sessions.

- Granny asks the children to meet Fred (prior to the game)
- The children are split up when they enter the castle
- Daniel meets Lady Searle who is disguised as a book
- Jenny meets Fred
- The book leads Daniel through the castle towards the temple
- Daniel encounters some sliths and the book advises him to kill them

- Jenny and Daniel meet each other again
- Lady Searle appears and interacts with the children
- The children decide on the fate of Lady Searle
- Fred comes back to see the children
- The children explain what happened to Lady Searle
- Fred suggests that they all go to see Granny

These plot episodes form the bare bones of a basic plot. The characters are given a goal to begin with. When the characters are separated, there is a further goal to find each other. Two new game characters offer to help them find each other, one of whom can help fulfil the original goal. After encountering some further obstacles (optional plot episodes), the characters meet one another again, but are presented by another problem in the form of a villain. The characters interact with the villain and eventually decide what to do with her. The plot is resolved when the characters fulfil their original goal.

This basic plot is less complicated than the original design because of various technical problems, lack of time during the role-playing sessions and the difficulty for the role-play leader in playing two parts at once. However, the role-players found the plot satisfactory, and challenging in the cases where Lady Searle was particularly persuasive.

6.4.2 Optional Plot Episodes

The following plot episodes happened in some of the role-playing sessions, but other satisfactory sessions did not contain them. These episodes can be considered optional; it is possible to form a coherent plot without them although they add something to the plot.

- **Fred warns Jenny of sorceress.** This happened in seventeen of the twenty-one log files. It was originally intended that this would be a key episode, but in some cases there was not time to warn her before she went to look for her brother. This omission was not disastrous, rather it made for interesting scenes with Lady Searle because neither of the children knew about Lady Searle's

reputation when they met her. It was easier for the role-play leader to portray the character as someone who might be trustworthy.

- **Fred's dog leads Jenny through the castle towards the temple.** This happened in only six of the twenty-one log files although it was designed to be a key plot episode. The idea behind guiding Jenny through the castle using a script controlled character was to reduce the load on the role-play leader. Unfortunately, the script was unreliable and unpredictable to the point that dog was often not there when he was needed to be a guide.
- **Daniel kills the slith monsters** at the book's request in twelve out of twenty-one log files. In the other log files he simply outruns the monsters. This was always intended to be an optional episode, although it was meant to test Daniel's trust of the book rather than his ability to evade monsters.
- **Daniel figures out the book is the sorceress** without being told directly on only four occasions. It was an assumption in the design that this would be revealed through conflict with the book at an earlier stage.
- **Jenny warns Daniel about the sorceress** eight times. On some occasions, the role-player met Lady Searle without Daniel knowing about the sorceress and Jenny had to work harder at that point to explain why Lady Searle should not be trusted.
- **Granny offers assistance** twice. She told the children they could call on her if they needed help at the start of the adventure, although this offer was seldom taken up. The children spontaneously called for Fred to help them more often.

6.4.3 Unanticipated Plot Episodes

The most frequently occurring plot episodes which were not anticipated at design time involved Fred's interactions with the children. Originally Fred's dog was supposed to lead Jenny to her brother. Unfortunately, it often wandered away from Fred at the start of the game to answer some unpredictable call of its script controlled nature. In that event, Fred had to step in and offer to lead Jenny to her brother (this happened in fifteen out of the twenty-one log files). This often resulted in Fred meeting Daniel and having a chance to warn him in person about Lady Searle (twelve times) and to hint or explain that Lady Searle and the book are the same person (six times). This had a positive effect because after meeting Fred, the Daniel role-player was more likely to object to Lady Searle's threats against Fred.

Furthermore, the role-play leader was given greater opportunity to explain the plot to the role-players. The Jenny role-players were not particularly good at explaining the threat from Lady Searle to Daniel without help from Fred and the Daniel role-players often needed Fred to help them guess that the book and Lady Searle were the same person. Another unexpected episode occurred when a Daniel role-player ran away from the slith monster and took a path which led him straight to Jenny and Fred. In this instance, Jenny helped Daniel kill the slith monster.

6.4.4 Plot Episodes that Never Were

The Daniel role-players were expected to interact more with Lady Searle by questioning her motives, her background or her tone of voice. It was anticipated that some Daniel role-players would distrust her to the extent that they would confront her and possibly try to escape from her. Many of the pre-recorded sound samples are responses to this scenario. As it happened, the children for the most part did not question Lady Searle in her book form. The reason for this is unclear, although one might speculate that the pupils are used to responding without question to an authoritative female voice in the classroom.

After the pilot sessions, we recorded some more voices for Granny so that she could make helpful suggestions to the children, for example to pick up certain objects. She could also advise Daniel that the book might be untrustworthy. Unfortunately, most of the Granny sounds were never used for two reasons. The first reason is a minor technical problem which prevented Granny's sounds from being played automatically at environmental trigger points. The second reason is more important from the point of view of designing future games. It was very difficult for the role-play leader to play even two characters at one time. Switching between Lady Searle and Fred was tricky; switching from either of these characters to Granny would have been even more difficult. This problem was exacerbated by the number of bugs which had to be worked around, particularly a bug in the Unreal audio subsystem which crashes the whole game when certain sound samples play at the same time. Even with a bug free environment it would be advisable to stagger the plot episodes so that the role-play leader's characters do not have to interact at the same time.

The plot design had a key episode where one of Fred's guard sliths attacks Jenny. At some point later Fred can heal Jenny. These two episodes were meant to cause Jenny to mistrust Fred at first and then regain that trust when he heals her. This sequence was never executed because the guard slith was too easy to escape from. The guard slith's cowardice stems from a bug in a path finding algorithm at lowest level of the Unreal engine which occasionally crashes the game. The workaround for this bug is to avoid using creature behaviours which require that algorithm.

The possible plot paths for the game were heavily restricted by not having choice points early on in the game. If Jenny were to doubt Fred when his monster bites her, or if Daniel were to turn against Lady Searle on the advice of his Granny, then the game would be less predictable and the role-players would have to make more character judgements. It is well worth attempting to fix the bugs which prevented these episodes from happening. It should be noted, however, that some of the less able role-players would *not* have benefited from further complication of the plot.

6.4.5 Plot Episodes that Should Be

The game should be extended to include two main plot episodes, which were not possible in the current version of Ghostwriter. The first of these is at the very end of the game where Fred suggests that they should all go to see Granny. Many of the children mentioned that they would have liked to find their way out of the castle and see Fred and Granny together. This is not currently possible because there was not time to motion capture movements for a Granny character.

The second desirable feature would be the potential for Fred and Lady Searle to meet each other face to face. This would help to extend the range of situations possible in the game to match the ingenuity of the role-players. For example, one role-player suggested that Lady Searle should help the children to find Fred. This forced the role-play leader to respond by making Lady Searle double cross the children and escape from them to prevent her having to come face to face with Fred. A confrontation between Fred and Lady Searle has many dramatic possibilities. To achieve this, the game would need to be extended to allow a player to control some

of the movements and the speech of either two player characters or a player character and a non-player character. This would be time consuming.

6.4.6 Summary

The basic plot of the role-playing sessions was simpler than originally envisaged because of interactions between bugs in the game. However, the design was flexible enough to deal with these bugs; key plot episodes gracefully degraded to optional plot episodes. This flexibility was possible because of the role-play leader's improvisation. Simplifying the plot on the fly and dealing with unforeseen scenarios resulting from bugs can be achieved through imaginative role-playing.

There are some restrictions on the role-play leader which limit the plot possibilities of the game. Extending the game to make it easier for the role-play leader to play more than one character would give scope for a wider range of scenarios.

Fixing the various bugs which interfered with plot episodes would capture the original design more faithfully, although further complication in the plot might be too confusing for all but the most able role-players.

6.5 Chapter Summary

This chapter evaluated the game with respect to its original design goals. The evaluation questions asked: whether the children enjoyed playing Ghostwriter; what they thought of the Ghostwriter interaction style; how successful they were at mastering the interface; and whether the original plot design was adequate.

The user evaluation shows that the children enjoyed playing Ghostwriter. All the children were very enthusiastic and focused while playing game and afterwards during the interview. They enjoyed sending and receiving messages and looking for Fred and Daniel. These character oriented activities are not common in commercially available games; although the Ghostwriter interaction style was unfamiliar, the children enjoyed it. Furthermore, not even the children whose favourite games were extremely violent mentioned that they would prefer more gore or violence. Ghostwriter thus compares well to commercially available games. The character

based game activities were at least as appealing as activities commonly found in commercial games such as shooting, dodging obstacles and collecting items.

Due to previous computing experience and familiarity with similar games, the children mastered the game controls very quickly and had no major difficulties with them. The message interface needs redesigning; a more sensible screen layout for incoming and outgoing messages would make it easier for children with lower levels of literacy.

The original plot design was flexible enough to deal with the loss of several plot episodes due to bugs. This flexibility was built into the design in the form of a human role-play leader who can use his or her imagination to improvise around plot deficiencies. The range of scenarios could be extended by making it easier for the role-play leader to play more than one character at a time.

7 Educational Evaluation

7.1 Overview

This chapter evaluates the educational effects of Ghostwriter.

The virtual role-play environment is designed to encourage the participants to empathise with the story characters and to make difficult moral decisions. As discussed in Chapter Four, these educational outcomes are related to the extent to which the pupils experience social and self presence. This is examined in Section 7.2 using qualitative data analysis of interviews with the children and evidence from the game transcripts.

Ghostwriter was also intended as a preparation activity for story writing. The hypothesis was that the virtual role-playing session would prepare the children to write stories with more effective characterisation. This hypothesis was evaluated quantitatively using the field study design outlined in Chapter Six and the story analysis scheme described in Chapter Three. Section 7.3 details the results of this field study.

Section 7.4 is an assessment of the general effectiveness of the game from the point of view of an experienced teacher. It covers how Ghostwriter affected the children's morale; the potential effects of the game on literacy in general; and how Ghostwriter could be integrated with other classroom activities.

The last section in the chapter presents five case studies to show the effect the game had on individual children of varying ability levels.

7.2 Evaluation of Virtual Role-playing

This section evaluates the extent to which the role-players experienced social and self presence during the session.

Users of the role-play environment experience social presence to “the extent to which a medium is perceived as sociable, warm, sensitive, personal or intimate when it is used to interact with other people” (Lombard and Ditton, 1997). In this study,

social presence is evaluated through by two means: 1) through the relationships the role-players form with the game characters and 2) the assessments they make of the game characters' personalities.

These two factors of social interactions are most relevant to the goal of the virtual role-play environment, which is to improve characterisation in children's stories, including descriptions of relationships between characters and personalities. The assumption is that the more "sociable, warm, sensitive, personal and intimate" the environment seems, i.e. the more the users experience social presence, the more likely they are to invest effort into forming relationships with the characters.

Every occasion where a role-player responds to a game character as if the character is life like is assumed to indicate that the role-player experienced social presence. Note, however, that it is possible for a user to experience social presence, but not to express this in the role-play dialogue. In particular, children who have difficulty with typing or constructing sentences may not be able to express their attitude to the game characters through the typed messages. To counter this problem, the user's evaluation of the game characters during the interviews afterwards is also assumed to be a gauge of how believable the characters were, and is thus an indication of social presence.

Self presence is evaluated by the role-player's expression of his moods or attitudes to the game events and characters. If he has become emotionally involved in the game then he has experienced self presence. As discussed in Chapter Four, self presence can be evoked through social presence, or through atmospheric effects such as music or lighting. Moods relating to game characters are assumed to represent self presence evoked through social presence.

The moral decisions the role-players made and the reasons they gave for making them are also considered in Section 7.2.1.5. Two sources of qualitative evidence are used in the evaluation of presence and moral reasoning. The first source is transcripts of the improvisation during the session in the form of the game log files. The second source is notes from interviews conducted with the children immediately after the game.

7.2.1 Game Log Files

This section is an analysis of the interactions and events which took place during the role-playing sessions. The analysis is based on twenty-one log files recorded during the game. These sessions are a subset of the role-playing sessions because the logging feature of the game did not work in some of the earlier sessions. The sessions are drawn from both the experimental and the control groups.

The log files were analysed for evidence of the role-player's relationships, personalities and moods using a scheme similar to the story assessment scheme. The messages were classified as **relationships**, **personality** and **moods** using the same criteria as the story analysis scheme described in Chapter Three (see Sections 3.3.2-3.3.4).

7.2.1.1 Relationships

Evidence that the role-players formed relationships with one another would suggest that they experienced social presence. This section considers the sorts of relationships that typically formed during the role-play sessions.

Messages in the log files were analysed for evidence of relationships. A line of text was counted in the relationship category if a character said something which indicated his or her feelings towards another character. Positive and negative answers to other character's questions can demonstrate relationships. For instance if Fred asks Jenny if she wants to find Daniel and she agrees, then it demonstrates that she is concerned about him. A relationship is also indicated when a character suggests someone should follow him, or when a character agrees to follow someone.

Each of the role-players made statements during the role-play which indicated a relationship with a game character. The number of relationship statements produced by each pupil is shown in Figure 7-1 .

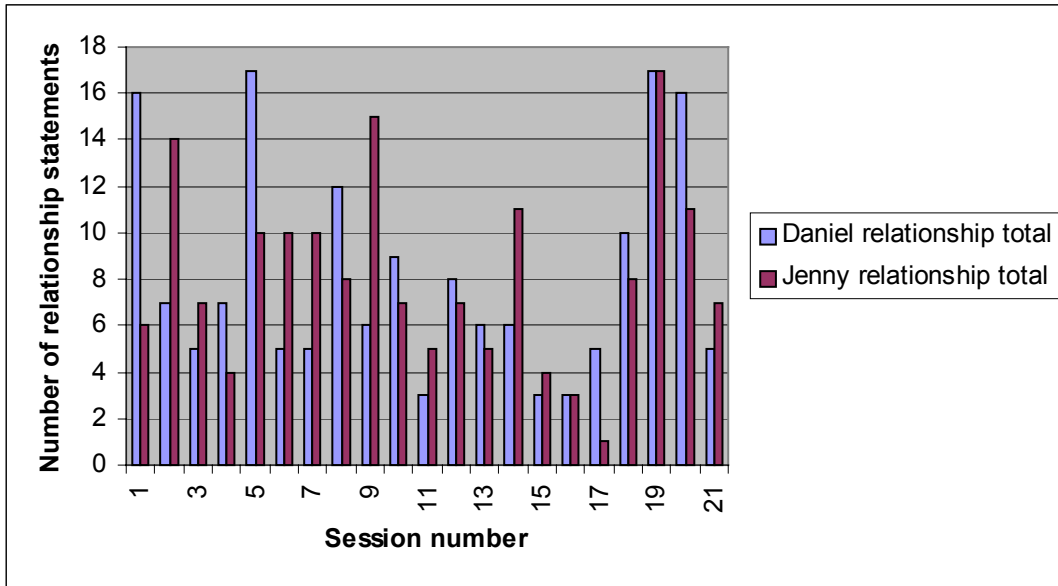


Figure 7-1 Relationship statements by pupils

Figure 7-2 summarises the frequency of relationships between particular game characters in the improvised dialogue during the role-play.

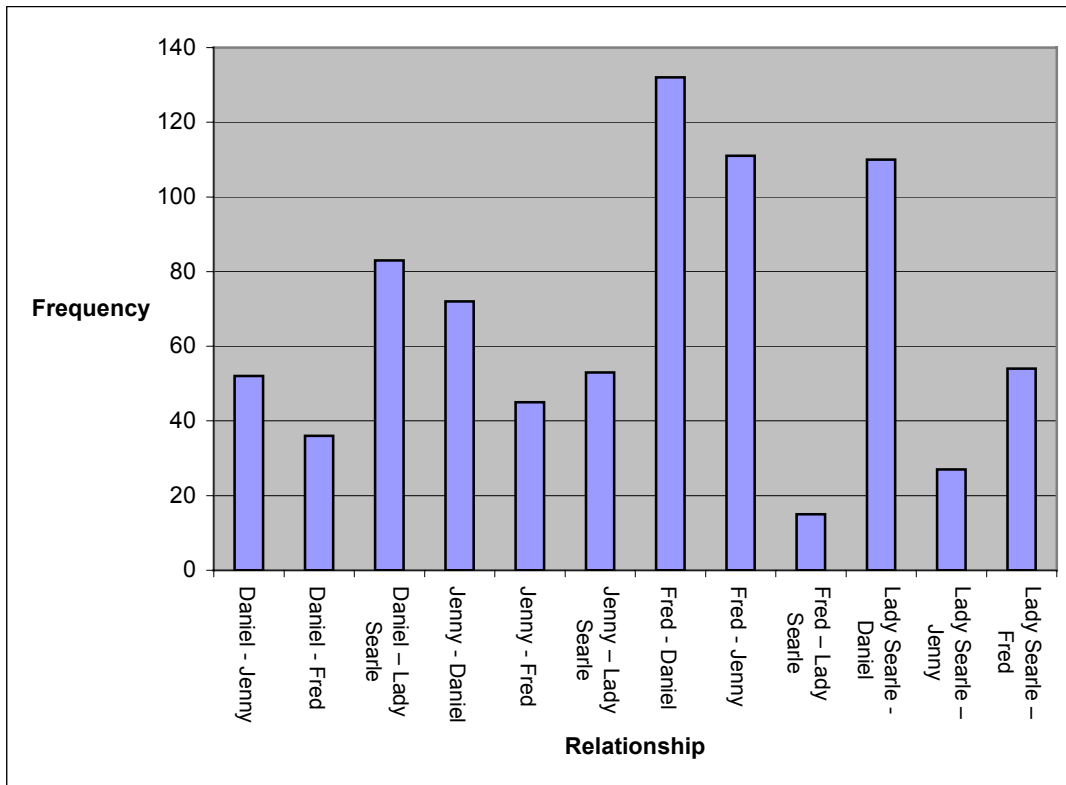


Figure 7-2: Relationships in role-play.

Table 7-1 gives descriptive statistics for the relationships. The characters played by the role-play leader demonstrated relationships most frequently. This is consistent with physical drama – the role-play leader generally devotes a lot of effort to encouraging the role-players to respond to her characters. The sorts of interactions between the role-play leader’s characters and the role-players are as follows. Fred demonstrated his relationship with Daniel by worrying about him and suggesting that Jenny should find him. He showed that he was concerned about Jenny by offering to help her find her brother. Fred and Lady Searle never met face to face, but they complained about each other to the children. Fred warned the children that the Lady Searle was evil, and Lady Searle sometimes told the children that Fred was untrustworthy. Lady Searle often pretended that she had killed Fred. Lady Searle spent a lot of time trying to persuade Daniel to help her by referring to their relationship while she was in the book. Lady Searle was nastier towards Jenny and tried to persuade Daniel to believe her rather than his sister.

Codes	Total	Mean	Std Dev
Daniel – Jenny	52	2.48	2.22
Daniel – Fred	36	1.71	1.59
Daniel – Lady Searle	83	3.95	2.33
Jenny – Daniel	72	3.43	2.29
Jenny – Fred	45	2.14	1.59
Jenny – Lady Searle	53	2.52	1.63
Fred – Daniel	132	6.29	2.74
Fred – Jenny	111	5.29	2.65
Fred – Lady Searle	15	0.71	0.64
Lady Searle – Daniel	110	5.24	3.69
Lady Searle – Jenny	27	2.57	1.89
Lady Searle – Fred	54	1.29	1.55
Total relationships	790	37.62	12.14

Table 7-1: Descriptive statistics for relationships.

The role-players who played the part of Daniel demonstrated relationships with Lady Searle most frequently. Most of the times his attitude towards her was negative e.g. “I hate you!”, “I am going to kill you”, “Jenny will you kill her for me?”. Occasionally Daniel made reference to his relationship with Lady Searle as the book e.g. “Jenny, I thought she was a friend”, “[trust her] because she helped me”. Although Daniel did not meet Fred for very long, there were a number of statements where Daniel displayed an attitude towards Fred. The role-players usually started to intensely dislike Lady Searle if she threatened Fred, which suggests that they liked him. Many of the role-players were friendly towards Fred when they met him, and some asked him if he was OK when they met again after Lady Searle was dispatched e.g. “Fred are you OK? Never mind us”. Some role-players called out for Fred to help them when Lady Searle threatened them which illustrates that they trusted Fred and thought that he would take care of them. The Daniel role-players’ relationships with Jenny were stronger than anticipated. While Jenny and Daniel were separated, several of the Daniel role-players typed messages asking where Jenny was and if she was alright. If Lady Searle threatened Jenny, most role-players defended her e.g. ”Leave my sister alone”, “No, I won’t let you kill my sis”. Another indication that the Daniel role-players had formed a relationship with Jenny is that the role-players often asked Jenny’s opinion about whether to trust Lady Searle.

The Jenny role-players most frequently demonstrated relationships with Daniel. Every one of the Jenny role-players either volunteered that she wanted to find Daniel, or agreed with Fred that she should find him. Some of the role-players warned Daniel about the witch either before they met her, or during the discussion with her e.g. “Daniel, beware. She could be evil.” and “Run Danny!”. One of the Jenny role-players explicitly used her relationship with her brother to dissuade him from believing Lady Searle: “Daniel stay with me. I’m your sister, or do you not care about family?”. Further evidence that the Jenny role-players formed a relationship with Daniel is that Jenny often asked for Daniel’s opinion or help when dealing with Lady Searle.

Most of Jenny's interactions with Fred come at the beginning of the adventure when she agrees to find her brother with Fred. All of the Jenny role-players trusted Fred enough to follow him (or his dog) to find Daniel. At the end of the adventure some of the role-players suggested that they should find Fred again, asked after him or thanked him when he asked about them. The Jenny role-players were mostly suspicious of Lady Searle, and tried to dissuade Daniel from trusting her. They often suggested killing her. This is possibly because Lady Searle is usually nicer to Daniel than to his "idiotic sister".

The fact that all of the role-players formed relationships with the characters in the ways described above suggests that they experienced social presence. The messages which were coded as relationships were often also highly emotionally charged e.g. "I hate you!". Many of these were not coded in the mood category because they were not explicit statements of emotion. However, they often implied an emotional state. If a character says "I hate you", it implies that they are angry and frustrated. Relationship messages which also imply emotions suggest that the sender was experiencing self presence.

7.2.1.2 Personality

This section focuses on the role-player's evaluation of the game character's personalities. Such evaluations are assumed to be evidence that the role-player considered the characters to be life-like enough to make the same kinds of character assessments that they might in real life. Such evidence would suggest that the role-player experienced social presence.

Messages in the log file were coded as personality whenever a character commented on another character's personality. For example, the "Daniel personality" code was applied at every line where Daniel commented on the personality of Lady Searle, Fred or Jenny.

Fewer of the pupils evaluated the personalities of the characters – 67% of the pupils made comments about a character's personality, whereas 100% of the pupils made a

relationship statement. The number of personality evaluations by each pupil is shown in Figure 7-3.

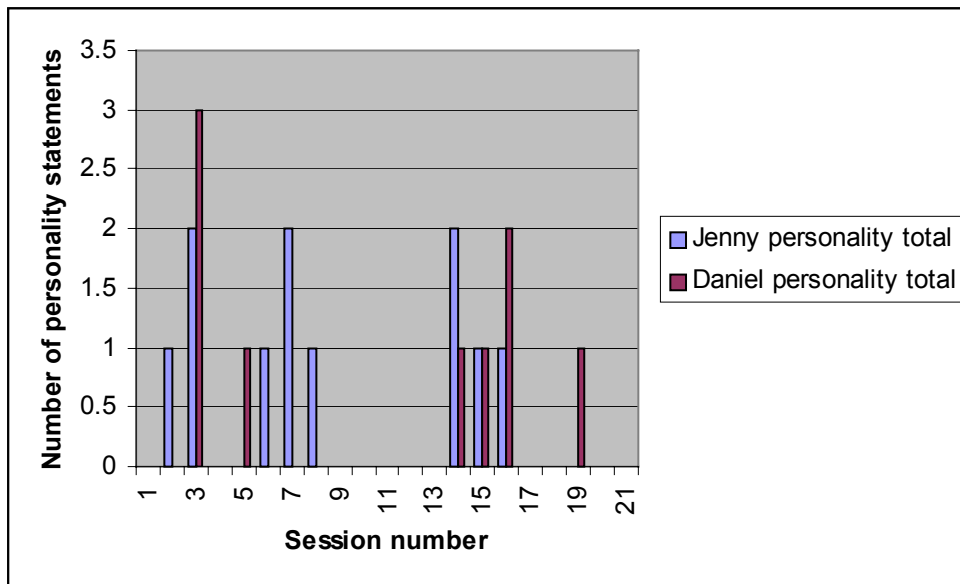


Figure 7-3 Number of personality statements per pupil

A summary of the personality codes for each game character in the log files is in Table 7-2 and Figure 7-4.

Codes	Total	Mean	Standard Deviation
Daniel personality	9	0.43	0.81
Jenny personality	11	0.52	0.75
Fred personality	17	0.80	1.03
Lady Searle personality	9	0.43	0.60
Total personality	46	2.19	2.14

Table 7-2: Descriptive statistics for personality during the role-play.

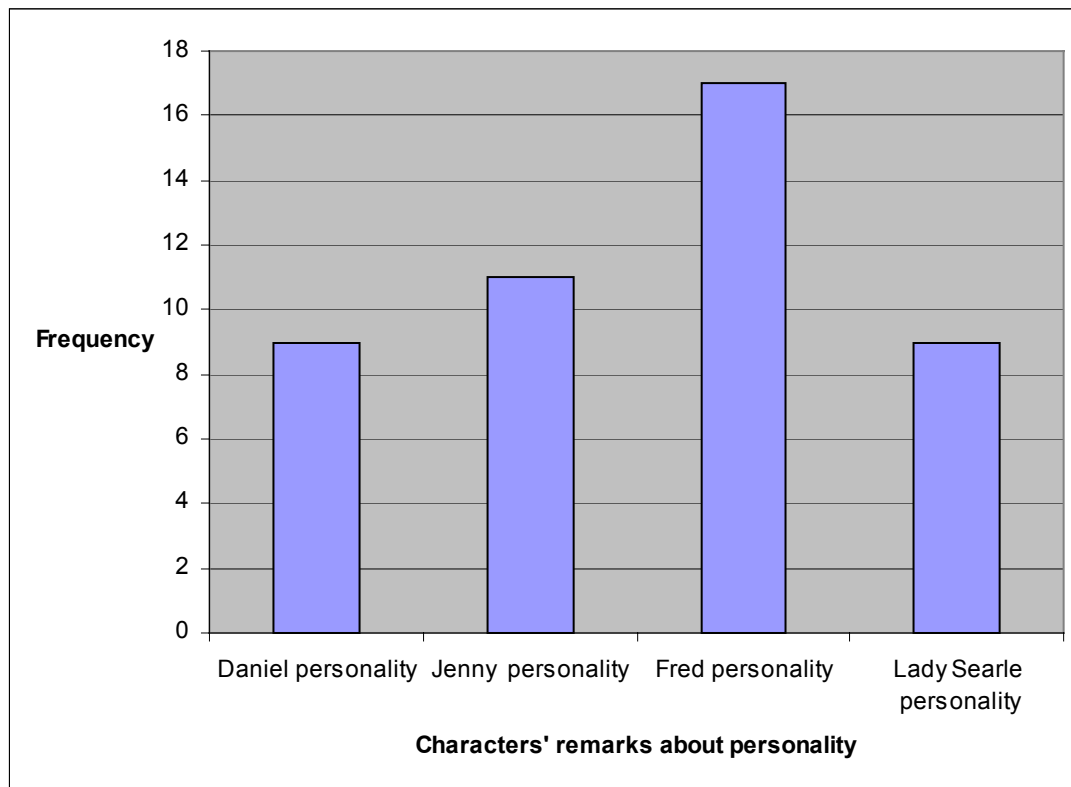


Figure 7-4: Personality evaluation during the role-play.

Once again, the role-play leader commented on characters' personalities most frequently. This was to establish the plot and to reassure the role-players. Fred commented on personality most often, partly because he had to describe the evil witch to warn the children, and partly because the role-play leader wanted Fred to praise the children by telling them they were brave for killing the witch.

Lady Searle remarked on her own personality e.g. "Mean? Quite right. Pure evil, some might say", on Daniel's personality e.g. "What a charming boy", on Jenny e.g. "Idiotic sister" and on Fred e.g. "Silly man".

Daniel and Jenny did not comment on each others' personalities. Most of the personality descriptions were applied to Lady Searle. She was described as "mean", "evil", a "liar", a "traitor", "insane", "moldy", "horrible" and other variants on that theme. This shows that the children recognised the personality that the role-play leader was conveying through word choice and voice tone in the pre-recorded sound samples. Only one of the role-players described Fred – "He's cool" – although it can

be seen from Section 7.2.2 that the role-players were able to recognise the personality projected by his words and voice.

During the role-play sessions the children commented on Lady Searle's personality. They evaluated her personality with emotionally charged words as if she were a real person whose behaviour was unacceptable. This suggests that the role-players experienced social presence when interacting with her.

7.2.1.3 Moods

The moods and attitudes the role-players expressed towards characters and events are assumed to indicate that they experienced self presence. A mood associated with a game character also suggests that the role-player experienced social presence.

Text in the log file was coded as a character's mood if it contained either explicit expression of emotion or implied emotion through the choice of words. An example of an explicit statement of mood is "Jenny: I am skaird". An example of mood implied through word choice is "Daniel: GHOST GHOST SPEAK TO ME PLEASE".

The pupils were less inclined to express emotion during the role-play than they were to evaluate personality or indicate relationships. A third of the pupils expressed emotion in the typed dialogue during the role-play.

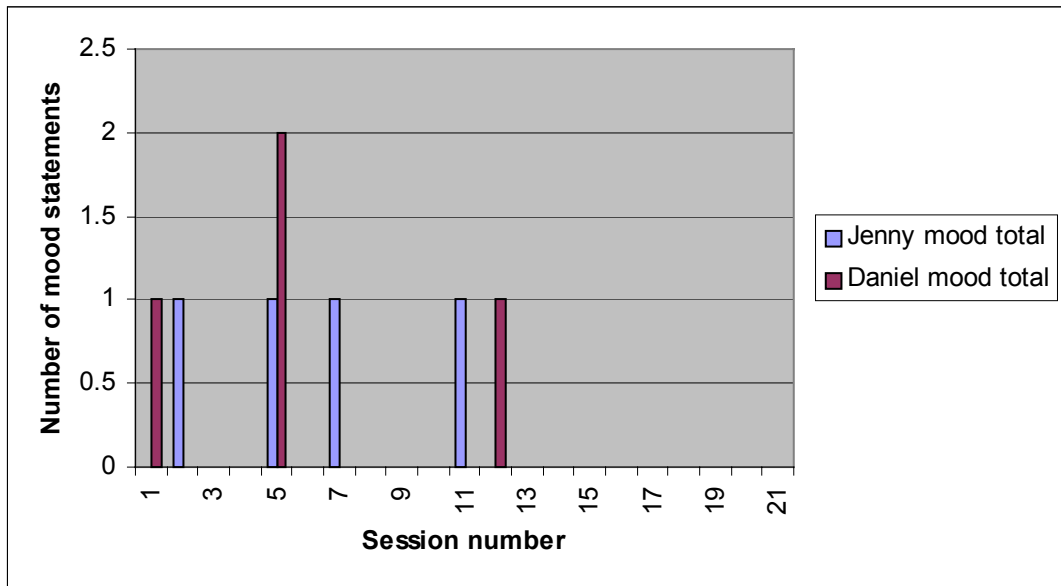


Figure 7-5 Number of mood statements by each pupil

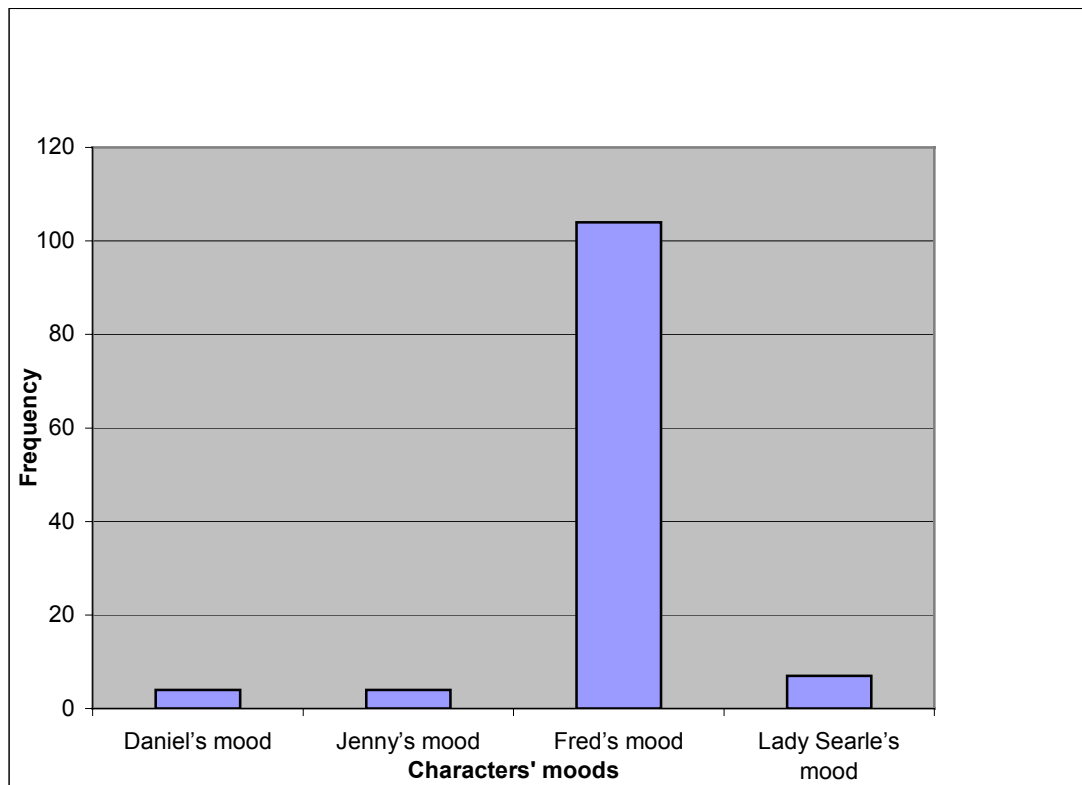


Figure 7-6: Expression of moods during the role-play.

As can be seen from Figure 7-6, the children were far less inclined to express mood than the role-play leader. Fred expressed emotion far more often than any of the other characters because the role-play leader was working hard to make Fred seem helpful and friendly towards the children. Fred was suspicious towards Jenny initially, then showed fear and concern for her brother. When the children met him at the end after dealing with Lady Searle, he said he was worried about them and he was glad to see them. He was usually pleased that they killed the witch. The main emotion expressed by Lady Searle was pleading. This is unsurprising, given that the children had to decide whether to kill her or not.

The moods expressed by role-players playing Daniel included confusion and fear, all expressed as pleas for help from Fred, Lady Searle or Jenny.

The moods expressed by the role-players who played Jenny included fear, sympathy and triumph.

Codes	Total	Mean	Standard Deviation
Daniel's mood	4	0.19	0.51
Jenny's mood	4	0.19	0.40
Fred's mood	104	4.95	1.47
Lady Searle's mood	7	0.33	0.66
Total mood	119	6.00	1.87

Table 7-3: Descriptive statistics for moods during role-play.

The role-players explicitly stated their moods less frequently than they demonstrated relationships with the game characters. However, many of the messages which demonstrated relationships were emotionally charged. They imply that the role-player was emotionally involved with a game character. This would suggest that self presence was evoked through social presence during emotionally involving interactions with characters.

7.2.1.4 Summary

The fact that all the role-players made statements which implied that they had a relationship with the game characters supports the claim that the role-players experienced social presence during the virtual role-play session. The emotional nature of the role-players' attitudes towards the game characters, particularly Lady Searle, suggests that they experienced self presence as well as social presence. It can be seen from Figure 7-7 that the pupils formed relationships with the game characters far more frequently than they evaluated personality or explicitly expressed emotion. This trend can also be seen in the analysis of the pupils' stories (see Sections 7.3.4 and 7.3.5). However, for individual pupils, there appears to be no relationship between the frequency of moods, personality and relationship codes occurring in the log files and frequency of moods, personality and relationships codes occurring in the post-game stories (Pearson correlation, $r=-.02$, ns).

The log files from the virtual role-play sessions show that all the pupils made comments which indicate their relationship with a game character. Some examples of the behaviour or attitudes which show these relationships are : demonstrations of the pupils' concern for each other; requested each other's opinions; like or trust towards Fred; and dislike for Lady Searle for her behaviour towards Fred or Jenny or Daniel. This positive result suggests that the virtual environment is suitable for role-playing. A further study would be required to explore the differences between real-life and virtual role-play sessions.

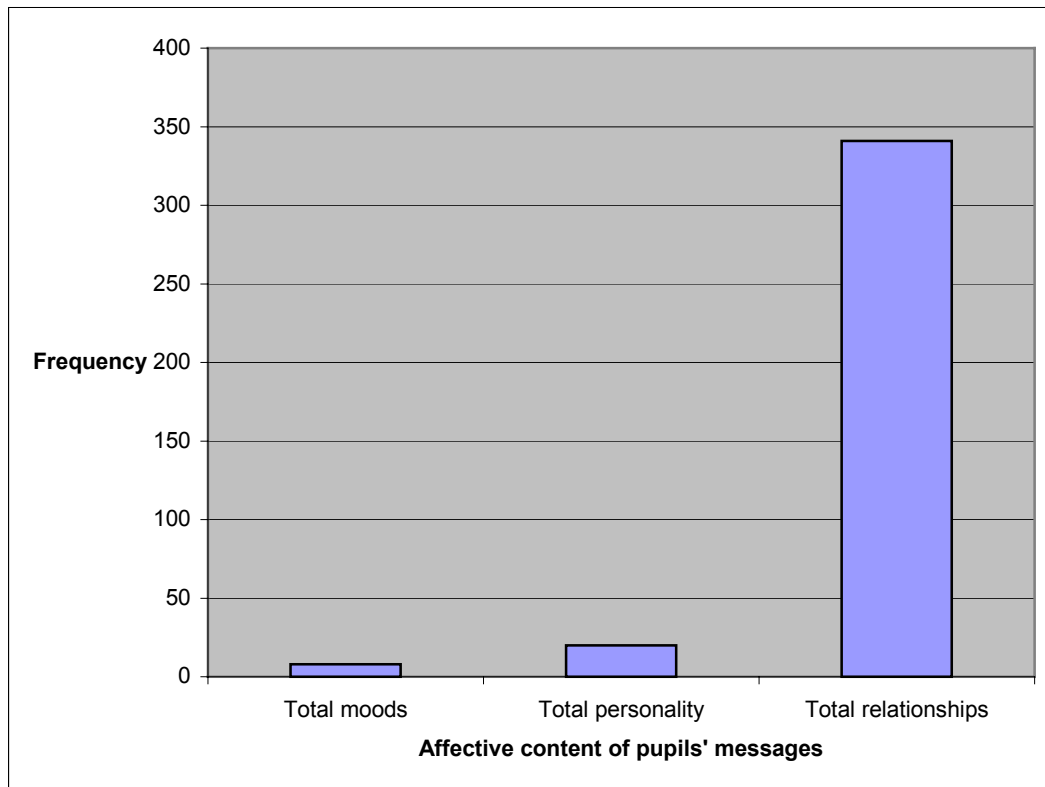


Figure 7-7: Moods, personality, and relationships.

7.2.1.5 Moral Reasoning

The pages of Gup, now they had talked through everything so fully, fought hard, remained united, supported each other when required to do so, and in general looked like a force with a common purpose. All those arguments and debates, all that openness, had created powerful bonds of fellowship between them.

Haroun and the Sea of Stories p. 184

The role-player's moral reasoning is apparent in the most important decision the role-players were faced with – how to deal with Lady Searle. Naturally Lady Searle's attitude towards the role-players had an effect on this decision. The role-play leader played Lady Searle differently on each occasion, choosing an attitude for Lady Searle in response to the behaviour of the role-players so far. Lady Searle's attitudes towards the children ranged from aggression to false concern. The attitudes were chosen based on the role-players' personalities and their literacy skills. Role-players who seemed more confident with reading messages and quickly typing replies seemed better able to cope with changeability in Lady Searle's attitude.

In eleven of the twenty-one recorded sessions, Lady Searle was aggressive from beginning to end. In two sessions she was nice (or at least neutral) all the way through. In eight of the sessions she started off by pretending to be nice to the children, but became aggressive if she did not get her own way.

Most of Lady Searle's behavioural repertoire stemmed from role-playing goals. In trying to persuade Daniel to help Lady Searle take over the castle (as she did seven times) the role-play leader was attempting to set up conflict between the pupil role-players. On four occasions Lady Searle told the children that Fred could not be trusted to encourage the role-players to decide which character was likely to be telling the truth. This strategy was so successful on one occasion that Daniel happily agreed to go hunting for Fred to kill him, and only was persuaded of Lady Searle's evil intentions when she suggested killing Granny as well.

Other strategies (such as threatening the children or Fred) were intended to illustrate Lady Searle's true nature and were particularly useful when Daniel was trying to decide whether to help Lady Searle or not.

If the children trapped Lady Searle she usually pleaded for her life by promising them a share of her power, or trying to get Daniel to remember their friendship when she was in the book. The role-playing goal of encouraging the role-players to question their own decisions took precedence over character continuity or realism.

When the game was designed it was thought that Daniel and Lady Searle's interactions when she is embodied in a book would make Daniel more likely to help her later in the game. This turned out to be incorrect. Firstly, the Daniel role-player only guessed the book and Lady Searle were the same person four times. Usually Fred or Lady Searle would explain the connection, but in three sessions, the Daniel role-player did not know of his prior connection to Lady Searle, and in one session he refused to believe it. In the remaining seventeen sessions, where Daniel was aware that the book and Lady Searle were the same, Lady Searle asked for Daniel's help either in taking over the castle, or saving her life once she is trapped. Daniel refused to help seven times, and agreed to help five times. Thus, prior interactions with Lady Searle did not seem to affect Daniel's behaviour towards her.

The role-players decided to kill Lady Searle in nineteen out of twenty-one sessions. The other two times Lady Searle was trapped while the children bargained with her. One bargain stipulated that she would not be killed if she left the castle and promised never to return. The other (rather unexpected) bargain was that Lady Searle would be set free only to help the children find Fred again. This bargain was tricky for the role-play leader because she cannot play Fred and Lady Searle at once. The only solution was to make Lady Searle double cross the children by escaping as soon as they freed her, and allowing herself to be caught once more and eventually killed.

It was anticipated that the role-players would be more merciful to Lady Searle. Experience from trying the game with teachers, storytellers and other adults suggests that adults are more willing to give her a second chance or invent suitable punishments. This suggests that there is a difference between adult and children's views of crime and punishment. The children thought about this decision and discussed it between themselves on all but two occasions. Lady Searle gave them reason to fear for their safety by: claiming to have harmed Fred (nine times);

threatening one of the children (six times); harming Doggy (once); threatening Granny (once). However, it does not seem that the role-players were acting *purely* from self-preservation because once Lady Searle was trapped and pleading, they still chose to kill her on nineteen occasions. The children seem to have a Old Testament “an eye for an eye” attitude towards her misdeeds as discussed in Section 7.2.2.4.

The game was designed to incorporate two more decisions. When Daniel is guided round the environment by Lady Searle in book form, she gets irritable and it was expected that the role-players would at the very least object to her tone of voice.⁷ This tetchiness was intended to lessen Daniel’s trust so that it is more difficult for him to decide whether he should kill the sliths as the book asks. The Daniel role-player kills the sliths on twelve occasions. However, it is difficult to tell why the other nine role-players didn’t kill the sliths. It could be because of a glitch associated with using inventory items; or because it is too easy to outrun the sliths; or distrust of the book; or simple cowardice. In general, the role-players did not tend to interact with the book at all. They simply went where she instructed them to. One boy asked why she was trapped in the book, and someone else queried how many sliths were around, and promised to kill them if the book would keep him safe.

The other decision designed into the environment was whether Jenny should trust Fred after she has been attacked by his guard slith and he is suspicious towards her. A problem with this plot episode was that the sliths were very easy to escape from. Most of the role-players did not object to Fred’s suspicion; only one asked how he would know that Fred was telling the truth.

In summary, the main decision was deciding what should happen to Lady Searle. In all but two sessions, the role-players discussed what should happen to her, and as can be seen from Section 7.2.2.4, mostly could give reasons for killing her. She was killed without provocation on only two occasions. However, the majority of the role-players chose to ignore Lady Searle’s pleading and kill her even once she could no longer harm them. It would be interesting to conduct a further experiment to

⁷ In fact, only one of the pilot testers responded to this tone, exclaiming indignantly “Cheeky bisom!”

systematically explore the interaction between Lady Searle's attitude towards the players and their decision about her fate.

7.2.2 Evidence from Interview Questions

We asked the children some questions about their game experience. The questions were asked at the start of the role-play debriefing session where the teacher, Mrs Munro, discussed the session with the children. During the debrief, she encouraged them to think about the decision they made and asked them to reflect on their feelings during the game. The answers to these questions give some insight into the extent to which the children experienced social and self presence. It also indicates how the children understood the game characters and their motives. Further evidence about the children's moral reasoning emerges.

The following sections discuss the answers the children gave during interviews. The answers are from twenty-nine children. They were interviewed in pairs after fifteen of the role-play sessions, although one child had to leave the session early and did not complete the interview. Note that the group of participants who answered these interview questions is a subset of those who played the game. All of the experimental group were interviewed, and a small number of the control group. This is due to lack of time available for interviewing the control group pairs.

7.2.2.1 Children's feelings about their partner

As discussed in Section 7.2.1, the relationships between characters can indicate the extent to which the role-players experienced social presence. In this section we discuss the relationship between the children and their partner during the game, and the following sections discuss the children's perceptions of the other game characters.

During the game the role-players get split up and are gradually led towards each other again. Before the children played the game we explained that they should try to stick together because "you never know what might happen once you get in there". We told them this to motivate them to find each other again rather than just exploring

randomly. During the interviews we asked “When you were separated from your partner did you wonder what was happening to them?”.

The majority of the children (90%) said that they had wondered about their partner. Three children didn’t, one because “it added to the tension of the game” and another “A little. I wasn’t that bothered. I was following the dog, so I thought he was too.” The third was confused and thought that they had been together all the time.

Five of the children spontaneously said they had been worried about their partner, and nine thought that their partner had been killed or attacked. Three thought that Fred or a dog might be keeping their partner safe. Three other people mentioned that it was good to have company because they could help each other.

It seems that the majority of the children did wonder about their partner when they were split up, many of them fearing for his or her safety. The fact that none of the role-players refused to try to find Daniel when Fred mentioned the danger suggests that they cared about what happened to their partner.

The pupils’ reports of their concern for their partner suggest that they were sufficiently involved in the adventure to suspend disbelief and experience presence.

7.2.2.2 Children’s perceptions of Fred

Fred was designed to be the “goody”; someone who could guide and protect the children from the perils of the castle. However, he does not appear very friendly at first because he is suspicious of intruders. His appearance is also quite off putting because he resembles the slith monsters who roam around the castle. Appearances are sometimes deceptive.

We asked the children “What did you think about Fred? (How would you describe him?)”. The answers described Fred’s personality, his appearance, and how he acted towards other people.

The most common words the children used to describe Fred’s personality were “helpful”, “nice”, “kind”, “friendly”, “weird”, “brave” and “funny”. In the twenty

nine answers, there were forty one comments about Fred's personality. Four of the children did not comment on his personality at all.

Frequent words used to describe Fred's appearance were "weird", "green", "goblin", "alien", "old". There were thirty comments about Fred's appearance from the twenty-nine answers. Nine of the children did not mention his appearance in their answer. Some children thought he looked like a bug or a grasshopper. Some of the descriptions were particularly imaginative e.g. "He looks about one hundred years old and he hasn't washed." and (in reference to his loin cloth) "He only had a little thing on and he would have been cold". Many of the children alluded to his resemblance to the monsters, or the contrast between his appearance and his personality (nine comments). One of the boys was especially pre-occupied by his appearance: "I don't like the thought of Fred as an alien thing" and "I never thought an alien would help us". Fred's appearance apparently put him in danger from those who thought he looked like the slith monsters: "I thought he was a monster at first and I would have killed him".

The children also described Fred's attitude to other people (fourteen comments). Fred's kindness in helping Jenny find Daniel, warning them about the witch and saving Jenny from the monsters were all mentioned. One girl commented "It was brave of him to leave us and try to help us". This refers to the part of the game where the role-play leader has to find an excuse for Fred to leave Jenny and Daniel alone so she can log in again as Lady Searle instead. Another thoughtful comment was "He remembered his old friend".

Some of the comments give the impression that the children formed a relationship with Fred as if he was a real person. Some examples to illustrate this are: "I like him and his dog", "He is a good friend. He was strange but when you got to know him he was OK", "I got on well with him", "I like Fred", "A friend". Interestingly, there were also a lot of comments along the lines of "He was a good character" but often these comments coincided with comments which suggest the child thought of him as a real person. For example "Good character. He looked weird. I got on well with him. He was bent forward". This suggests that the child knows that Fred is fictional,

but has continued to suspend his disbelief to a certain extent. One girl said “It was nice to help him, and it would be nice to make him and Granny meet.” This illustrates that she had a relationship with Fred (she liked him enough to want to help him) and that she empathised with him (she wanted him to see his old friend).

In summary, we can infer from the interview answers that at least 86% of the children recognised the personality which the Fred character projected. The answers also indicate that some of the children recognised the contrast between his appearance and his personality; or could describe his attitude to other people; or that they formed relationships with him. This adds to the evidence from the log files (Section 7.2.1) which suggests that the children experienced social presence.

7.2.2.3 Children’s perceptions of Lady Searle

Lady Searle was designed to be a manipulative, untrustworthy, evil sorceress. Her nastiness varied from session to session, depending on the role-play leader’s intuition about what would appeal to the role-players. She pretended to be nice when she was disguised as a book, and revealed her true colours at some stage during the final discussion. It was intended that the role-player who met her when she was disguised as a book would like her and want to help her while the other role-player would dislike her because of Fred’s warning about the evil sorceress. One point to note is that after one pupil mentioned that he didn’t know what “sorceress” meant, the role-play leader referred to Lady Searle as a witch, on the assumption that everybody knows what a witch is. The problem with this is that the word “witch” has slightly different connotations from “sorceress”. The word “sorceress” suggests a power magical person who may or may not be evil. On the other hand, most children are used to witches appearing in fairy tales where they are invariably bad and get killed at the end by the hero. It is possible that this influenced some children when they had to decide whether to kill her or not.

We asked the children “What did you think of Lady Searle? (How would you describe her?)”. The answers described her personality, her appearance, her laugh, and catalogued a list of her bad deeds.

The most common words used to describe her personality were “evil” and “wicked”. Other adjectives were “mean”, “horrid”, “ghastly”, “persuasive”, “nasty”, “weird”, “liar” and, strangely enough, “funny”. This last description comes from the role-players who interacted with the more extreme versions of Lady Searle who purposely said shocking things in a rather dry way. Some interesting comments were “Persuasive but I wasn’t persuaded.”, “A scavenger, like the shark”, “She was bland. I like the way she tried to bribe me”, “she just wanted everything to herself”. There were fifty three comments describing Lady Searle’s personality. Only one boy did not mention her personality at all, instead merely stating that she was ugly.

The descriptions of Lady Searle’s appearance were slightly surprising. She was often described as “ugly” and “witch-like”. This is odd because she does not wear conventional witch-like garb, and she doesn’t have the classically ugly features a witch might have such as a hooked nose, or warts. Other appearance descriptions mentioned her “Chinese style dress”, and that she was tall and mysterious. Some slightly catty comments from two girls were “She dressed really tarty” and “She didn’t brush her hair.”. There were twenty-one descriptions of Lady Searle’s appearance. Twelve children did not mention her appearance.

There were twelve mentions of Lady Searle’s attitude to others. Most of these referred to the way she lied about killing Fred, how she went back on her word, her trickery and deceitfulness, and her threats against Fred and Jenny. More discussion of these traits was elicited by questioning the children about the decisions they made at the end of the game (see next section).

A notable exception to the general persecution of Lady Searle was the conclusion about Lady Searle’s motives reached by a pair of girls. They pointed out that they had been trespassing and that maybe if they had left her alone she would have been nicer. They also suggested that she would be happier if she had a nicer castle, and even decided that she should give her castle to a museum and get a nicer one without monsters.

The interview answers suggest that at least 97% of the children recognised Lady Searle’s personality traits and were aware of her reasonably complex attitude to other

people. Some commented on her deceitful attempts to persuade them to help her and her habit of breaking promises and lying. It could be said that the children formed relationships with her, but these relationships were seldom harmonious, usually resulting in her death. This is consistent the evidence about the role-player's relationship with Lady Searle presented in Section 7.2.1.1 and the conclusion that the role-players experienced social presence.

7.2.2.4 Children's reflection on decisions during the game

The climax of the role-playing is the scene where Jenny and Daniel must decide on the fate of Lady Searle. The children can trap Lady Searle in a force field which prevents her from doing them any harm. While she is trapped, the children discuss what they should do with her, and she tries to influence them. At this point the role-players must make the difficult decision about whether to kill her or release her. They usually kill her.

After the game we asked the children "Are you happy with the ending you chose? Why?". We wanted to establish the reasoning behind the decision in the final scene because these reasons might indicate how thought-provoking the role-play session was.

The majority of the children (86%) said they were happy with the fate they chose for Lady Searle. Some people commented that they would have liked a different ending to the *game*, rather than the ending to that particular scene. This slight confusion is caused by the poorly worded question. Some children mentioned that they would have liked to have seen Granny at the end, or get to explore and find the exit. One pair thought that there should have been more of a fight, with Lady Searle trying to defend herself. Another pupil mentioned that she felt disappointed that her partner had the items needed to trap and kill Lady Searle and she had nothing to do. One girl said she was happy with the ending because she had "found Fred and that was the aim".

Only four of the children expressed any reservations about deciding to kill Lady Searle. One of the participants in the session where they agreed to free Lady Searle

only to discover that she had tricked them said “Yes, I think so. I was going to kill her at first, but Daniel said no”. Another participant said “I wasn’t sure whether to kill her but Christopher always told me”. She did not realise that the point of the activity was to decide for herself and she seemed grateful to Christopher for helping her. Another pair discussed the dilemma afterwards. One partner suggested an alternative ending “We could have left her trapped and asked her lots of things”. His partner summed up the debate neatly with “Kill her, keep her. It would be cruel to kill her because she did help. But she was mean so she would have bugged me”.

Only five of the children did not give a reason for being happy with the ending, or for killing Lady Searle. Most people said Lady Searle deserved to die. The main reason for killing Lady Searle was that she was a bad person. Some mentioned that she killed or threatened to kill people, some said that she had betrayed them, some said she would take over the castle and some simply said that she was a liar or that she was mean. One boy encapsulated the moral behind this kind of reasoning “Everyone deserves to die if they do bad things”. Another said “She deserved it for lying”. This particularly harsh brand of justice is implicit in many of the other children’s answers.

Two people mentioned that she would have hurt other people if she hadn’t been killed, and one person raised the issue of self defence “I’m happy because she is dead and I am safe”.

To summarise, few of the children regretted their decision to kill Lady Searle (14%), and most (83%) gave a reason for deciding to kill Lady Searle. This is positive because it shows that they can articulate their reasoning from the role-play session. On the other hand, the reasons they gave for killing Lady Searle were not very well thought out. For example, few of them considered that there would be very few people left standing if there was a death penalty for lying. A role-play session of this sort could be complemented by a follow-up debate about crime and punishment. One of the teachers mentioned to me that this type of debate is normally quite difficult to start because the children tend to agree with what the teacher says without question. Mrs Munro, the teacher who worked with me during the field study, commented :

“[It is beneficial] that you can raise questions that are very important without having to comment on them yourself and that the children will actually justify their beliefs and explain why. It also is very good for persuasion because on several occasions someone persuaded someone not to do the impulsive thing. So that on the purely social and personal development level, and on the moral and emotional level, it is a very good tool because there isn’t the same interference of an adult. It seems to be,... it pulls the adult back so the children can make their own decisions and really discuss.”

It might be the case that having made an important decision during the role-play makes the children aware of the issues involved in a more personal way. It could be that a debate after the role-play sessions would involve more lively discussion between the children.

7.2.2.5 Summary

Evidence from the interviews conducted after the game indicate that most of the children evaluated the personalities of the characters in the games and formed relationships with them. Most children were able to give reasons for their decision about whether to kill Lady Searle, although the value system implicit in these reasons were different from some adults’.

7.2.3 Summary

This section evaluated the role-playing aspect of Ghostwriter using data from interviews with the children and transcripts of the game.

Analysis of the log files shows that all the children formed relationships with the game characters. Some were concerned about the well being of their partners; some helped each other; some stood up for each other or requested each other’s opinion. The pupils generally liked and trusted Fred and disliked Lady Searle. Messages which explicitly expressed emotions or evaluated character’s personalities were less frequent. However, many of the messages which demonstrate a role-player’s relationship with a game character are emotionally charged, implying the role-player’s emotional involvement. This log file analysis is corroborated by evidence from the children’s answers to interview questions about the game characters. All of the children commented on Lady Searle’s personality and most on Fred’s

personalities as projected by the role-play leader. Some of the children evaluated the motives of these characters. This evidence suggests that all the role-players experienced social presence and some experienced self presence during the sessions.

There is also evidence that the role-players thought about the moral decision of whether to kill Lady Searle. The majority (83%) gave reasons for killing her, although some of these reasons imply a different value system than that of many adults.

7.3 Story Evaluation

This section is an evaluation of the educational effect that the virtual role-playing activity had on stories written afterwards. As discussed in Chapter Three, the hypothesis was that the role-playing activity would have a positive effect on characterisation in the stories. Section 7.3.1 describes the design of the field study, including the procedures used for gathering stories from participants in the control and experimental groups. Section 7.3.2 gives a qualitative description of the stories in each group. The sections following it are concerned with quantitative analysis based on the story assessment scheme described in Chapter Three.

The statistical method used to compare the frequency of story assessment scheme categories occurring in stories from each group is described in Section 7.3.3. Sections 7.3.4 and 7.3.5 report the results of quantitative comparisons between control and post-game stories, and between pre-game and post-game stories respectively. Section 7.3.6 contains an analysis of the ways in which the pupils in the experimental group adapted language they used during the virtual role-play session for use in their stories. The results are discussed and summarized in Section 7.3.7.

7.3.1 Field Study Design

When researching educational software, there is often a trade-off between the goals of the project and the purity of the method used to evaluate it. Ultimately, the goal of the software is to help children learn and to give them a positive educational experience. Although it is desirable for the researcher to stand back and objectively

evaluate the impact of the software on the pupils, this may conflict with the goal of providing a positive educational experience. For example, it may be inappropriate to refuse to help a child when he requests assistance. Furthermore, even the presence of a researcher or a video camera in the classroom interferes with the normal classroom dynamics, and may have a positive effect on the pupils simply because they are getting extra attention.

In this field study, the normal classroom pattern was disrupted for the experimental group. This was unavoidable due to the novel nature of the study and the physical layout of the school. The study took place in the computer suite rather than the classroom to avoid disturbing the rest of the class. The computer suite is used infrequently; usually the children use computers in the classroom. The children were not used to taking part in research studies, or the extra attention from the researcher. They knew and liked Mrs Munro, and enjoyed a chance to work with her. It is likely that these factors had a positive impact on the pupils' performance. Instead of working with a ratio of 2 adults to 60 children (the two classes in the year group are usually taught together), they were working with 2 adults to around 6 children (some of the children finished writing their stories in the room while another pair of children played the game). However, this was unavoidable given the constraints of the school situation.

The researcher had an active role during the field study. She played the part of the role-play leader and supplied technical help. The reason for this was that no-one else was sufficiently familiar with the interface (at the time) to perform this role. Attributes of a successful role-play leader in physical drama are enthusiasm, energy, patience, intuition, and cheerfulness. The attitude of the role-play leader was judged to be a crucial factor in the success of the software, and so the researcher attempted to play the part of the role-play leader to the best of her ability. This educational goal directly contradicted the goal of assuming an objective stance during the field study. Again, this was unavoidable in the circumstances. However, the researcher is not a trained role-play leader. It is expected that the effectiveness of the virtual role-play environment would increase with the use of a trained role-play leader.

Although the study was originally designed to have a pretest-posttest with control design, it proved impossible to obtain pretest stories from the control group. This was due to the class teacher's lack of time towards the end of the school term. As the pupils have now left primary school, and their writing exercises books are not stored by the school, there is no way of recovering the lost data. The lesson to be learned from this is that in future studies, the pretest should be administered before the study begins rather than collected from stories written previously in exercise books. In addition, it would allow for more control of the instructions the children are given, and therefore a fairer comparison with the post-test stories. A relevant problem associated with this is that the class teacher was concerned about the children writing too many stories in too a short a period in case they got bored or "burnt out" before their all important national curriculum story writing assessments. However, this concern could be addressed through careful preplanning.

The resulting lack of control pretest stories necessitated a change in the experimental analysis. The comparison was intended to be between the changes in characterization and setting descriptions between pretest and posttest stories in both groups. Since this was not possible, comparisons between the control group posttest stories (stories written under normal classroom conditions, hereafter referred to as the *control stories*) were compared with the experimental posttest stories (stories written after the virtual role-play preparation activity, hereafter referred to as the *post-game stories*). This is a one way between-subjects design with the story writing circumstances as the independent variables and the story categories as dependent variables. This compares a group of stories written under normal classroom conditions to a group of stories written after the virtual role-playing activity. One problem with this design is that is difficult to ensure that the control group and experimental groups are matched in skill to start with. As discussed in Chapter Three, Section 3.3, there is no correlation between the story assessment scheme and performance on national curriculum writing assessments. This is because there are many ways of writing a good story; stories with different profiles across the story analysis scheme categories can be equally enjoyable. However, a multivariate analysis of variance with control stories and experimental pretest as the group factor,

and the categories of the story analysis scheme as dependent variables, showed no overall significant differences (Wilk's lambda = .517, $p=.021$). For reasons discussed in Section 7.3.3, significance level was set at .01. There were no significant differences in between-subjects effects on each dependent variable, apart from word count. These results are summarised in Appendix F. That is, the control and the experimental pretest stories are indistinguishable using the story analysis scheme. *This indicates that the stories written under normal classroom conditions by members of the experimental and control groups are equivalent.*

The experimental group pretest stories (hereafter referred to as the *pre-game stories*) were also compared to the post-game stories. This is a one way within-subjects design with the story writing circumstances as the independent variable and the story categories as the dependent variables. This analysis compares stories written under normal classroom circumstances to stories written by the same authors after a virtual role-playing session. One potential problem with this design is that the pre-game stories were gathered from the pupils' writing exercise books and were written at different times, about different topics. This could result in unfair comparisons for two reasons. Firstly, if certain pupils' writing had improved after writing the pre-game story, differences between their pre-game and post-game stories would not represent the effect of the treatment. However, the pre-game stories were selected from the most recent stories in the pupils' exercise books, and previous research indicates that improvements usually result from practice in writing stories. They are less likely to result from isolated language exercises (Sperling, 1996). For this reason, the pretests can be taken to be representative of the pupils' story writing skills. The second potential problem with pre-game stories is that they are written about a range of different subjects. If the topic of a story makes a difference to the typical story category profile, then changes in the category profiles between the pre-game and post-game stories may not be due to the treatment alone. It could be that the profiles change according to genre; for example, perhaps ghost stories usually contain a lot of appearance descriptions. However, the fact that story category profiles of the pre-game and control stories are not significantly different suggests

that this is not the case. The pre-game stories were written about a range of different topics and the control stories were all about a visit to a ruined castle.

The control condition was a normal writing lesson with the class teacher, followed by writing time with support from the teacher. The pupils were asked to write a story with the title “A Visit to a Ruined Castle”. The class teacher introduced the lesson by brainstorming with the class for story ideas. She incorporated these ideas into a mind-map which was left on the blackboard for the children to consult as they wrote. She also reminded the children of desirable story features, such as a well-structured plot and believable characters. The children drew mind-maps to plan out a structure for their own story and then began their first drafts. As the children drafted the stories, the teacher: helped individual children; suggested that the story could be about Ravenscraig Castle (a local castle); provided books and pictures of castles; and spoke about the architecture of castles. Notes from an observation of this lesson can be found in Appendix D.1. The pupils were allowed to finish writing their stories when they had spare time that week, and so the length of time on task varied between pupils. This is normal classroom practice.

The experimental treatment was administered to pairs of pupils who are friends (as selected by the class teachers). The experimental treatment consisted of: a tutorial on using the game controls given by the researcher; a recorded introduction to the “rules” of the game; a recorded message from “Granny”, introducing the pupils to the goal of the adventure; a forty minute virtual role-playing session with a researcher playing the part of the role-play leader; a debriefing and question session lead by Mrs Munro; recorded instructions about the story writing exercise; and lastly, time to write the story. The experimental materials can be found in Appendix D. The amount of writing time varied; the pupils were allowed to write the stories until they finished them. If they ran out of time after their session, they came back to the computer suite to finish writing them. Thus, there was no control for time on task between or within groups. This reflects the teachers’ recognition that a creative task will be more or less time consuming according to ability and inspiration. In practice, the control group generally got longer to write their stories than the experimental

group, and so any positive effects observed in the experimental group cannot be attributed to extra time on task.

As the pupils played the game, Mrs Munro helped pupils with spelling, reading and typing if they needed it, and the researcher assisted with technical and interface problems. While the pupils wrote their stories, Mrs Munro assumed the role of class teacher. That is, when she had time to spare and she saw that a pupil was struggling, she helped him in an appropriate way. This help took the form of general encouragement, clarification of task, spelling suggestions but not ideas for the content. This is analogous to the support the class teacher gave to the control group. Mrs Munro helped two of the pupils by transcribing their stories, which undoubtedly had an effect on the length of their stories and possibly their writing style. These pupils have particular trouble with writing (as outlined in case studies B and C in Section 7.5), and it is normal educational practice to provide extra support in such a case, for example pupils who have writing difficulties during national exams are assisted by a scribe.

To summarise, there are some features of the field study methodology which do not follow strict experimental methodology. These features arise from the constraints of conducting a field study in a natural school setting and following normal teaching practice as closely as possible.

There are also problems relating to the experimental design of this field study. This is because control pretest data was unexpectedly unavailable. As it was no longer possible to use a pretest-posttest with control design, two separate analyses were carried out instead. The first of these was a between-subjects comparison of the control posttest stories with the experimental posttest stories. The second was a within-subjects comparison of the experimental pretest stories with the experimental posttest stories. The potential problems relating to these designs have been outlined. The fact that there are no significant differences between the control posttest and the experimental pretest stories, both written under normal classroom conditions, indicates that the experimental and control groups are equivalent and addresses these problems to a certain extent. Furthermore, the results to be discussed in Sections

7.3.4 and 7.3.5 show that the trends in the within-subjects and between-subjects results are consistent.

7.3.2 Overview of Stories

This section describes the general characteristics of the pre-game stories, the post-game stories and the control stories. A subjective impression of the differences between the groups of stories is given.

The pre-game stories are the most recent stories from the children's English jotters. These stories were written under normal classroom conditions after an introduction to the topic by the class teacher. There are three different classes in the experimental group and these classes are split into different groups for English Language. Consequently, the stories are about different topics and were written at different times. The stories from one of the primary six classes were written after a lesson on describing characters. The adventure stories written in response to this lesson contain more descriptions of appearance, and more attempts at conveying personality than the other experimental pre-test stories.

The topics in the experimental pre-test stories include personal experiences, adventure stories, stories related to project work and imaginative stories based on real life characters. The quality of these stories varies widely. The length of the story is often a good indicator of the quality of the story with a longer length indicating higher quality.

The control group wrote stories with the theme "A Visit to a Ruined Castle." These stories were written by one primary seven class after a lesson by the teacher. The pupils worked on their stories for an afternoon with the teacher's input and then finished the story in their spare time afterwards. The stories were second or third drafts and so were more polished than either the pre-test or the post-game stories.

The topics of the stories were all associated with a ruined castle. Many of the stories were similar in location, plot and theme. A selection of stories started off with a school trip as the class teacher suggested. Some of them took place in the castle near

the school (Ravenscraig Castle). A number of the stories contained violent scenes with pupils slaughtered by angry ghosts, Nazis or axe murderers. The class had just finished working on a World War Two project, and despite their teacher's reminder that "The war is over, boys!", there were a few stories featuring Hitler. Most of the ruined castle stories were scary, mostly using shock rather than suspense to achieve the effect. Some of the more violent stories followed the plots of recent teenage horror movies such as "Scream" or "The Faculty" where the protagonists are killed one by one until the hero manages to stop the murderer (see Appendix B.1 and B.2). Other common plot lines were the "it was all a dream" scenario (see Appendix B.2 and B.3). Another common scenario was one where the ghost turned out to be a friend playing a trick on the hero (see Appendix B.4 and B.5). While the violence in the stories was often gory, the repercussions were generally unrealistic. For example, in one story, a pupil is murdered and once the rest of the class escape they sing all the way home on the school bus (see Appendix B.6). Violence in children's stories has also been noted in (Czerniewska, 1992 and Lensmire, 1994).

The control group stories varied in quality although there seemed to be a larger number of stories of similar quality than the pre-test group. Again, the longer stories in this group were generally of higher quality than the shorter stories in the group.

The post-game stories were written immediately after playing GhostWriter. The children drew a mindmap and then a story plan before writing the story itself.

The post-game stories usually have coherent plots because they are faithful to the structure of the game experience (a notable exception may be found in Appendix B.10). This plot coherence offers an interesting contrast to the control and pre-test stories which often have rambling or obscure plot-lines. Most of the post-game stories stick closely to game events. The game plot was carefully designed over a period of months, so the plot is more likely to be coherent than stories written over a short period. Extreme examples of faithful recounts read like personal experience stories (see Appendix B.8 and B.10).

It was rare for the pupils to add to the plot or to add imaginative details to the setting descriptions. It is clear that the pupils were *not* using the game as inspiration to

create an imaginative story; they were mostly reporting what actually happened during the game. Exceptions can be found in Appendix B.10 and B.12.

There were some problems inherent in the writing task. The main problem was incorporating Granny's message into the story without interrupting the flow of the story. This confused some of the writers because it upset the chronological order of the role-playing session. First the children practised playing the game, then they listened to Granny's message, and then they started the adventure. Some of the children had difficulty with this, because they described the practice session outside the castle at the start of the story and were at a loss when they had to switch scenes to Granny's nursing home. One of the pupils responded particularly well to this challenge (see Appendix B.12). He made up a lengthy scene in which the children are transported from the nursing home to the castle by another of Granny's friends.

Length was not an indicator of quality in these stories. There are some well crafted accounts of the game which are concise and brief (see Appendix B.13, B.14 and B.15). In these cases, the stories are almost summaries of the game events. The writer has transformed the structure of the experience; possibly an indication of the knowledge transformation strategy (Bereiter and Scardamalia, 1987). The personal experience style stories were very long and written with less skill. A possible explanation for this is that one of the skills a good writer learns is how to filter out unimportant details and emphasise exciting bits. The extra length in the personal experience, blow by blow accounts of the game may be a result of the writers' lack of this filtering skill i.e. use of the knowledge telling strategy (Bereiter and Scardamalia, 1987).

The differences between the stories written in classroom conditions and the post-game stories can be summarised as follows: the post-game stories had more coherent plot-lines than the classroom stories, and the length of the post-game stories was not such a reliable indicator of story quality. The next section analyses the differences between the groups of stories in a more systematic, quantitative way.

7.3.3 Statistical Comparison of Stories

This section describes the statistical method used for the comparisons between the control and post-game stories and for the pre-game/post-game comparison. It also discusses the assumptions on which the analysis is based.

A one way repeated measures multivariate analysis of variance was used to compare the pre-game stories to the post-game stories. The repeated measures factor was the treatment. It had two levels: pre-game stories and post-game stories. The dependent variables were the story scheme categories plus word count. A multivariate analysis of variance was used to compare the control stories to the post-game stories. Again, the story scheme categories were the dependent variables. The comparisons were executed using SPSS for Windows, version 8, using the general linear model (repeated measures) function. The general linear model is appropriate for analyzing data in which there are more than one dependent variables which may be correlated. In this case, the dependent variables are the story categories, and it is possible that the categories correlate with each other.

This analysis method is based on three assumptions: a) independence of observations; b) univariate and multivariate normality⁸ and c) homogeneity of variance (population covariance matrices are equal for the dependent variables). Violation of these assumptions can lead to an increase in Type I and Type II errors (rejecting the null hypothesis when it is true, and failing to reject the null hypothesis when it is false respectively).

Stevens states that the most serious violation of assumptions comes when the observations are not independent. Dependent observations can have a “drastic effect” on Type I errors (Stevens, 1996; p. 240). One cause of dependence between observations is cooperation between-subjects as part of the treatment. In this study the treatment involved pairs of children, so one might speculate that this would have an effect on individuals’ stories afterwards. Fortunately this can be corrected as explained below.

⁸ Sphericity is *not* required for multivariate repeated measures analysis, although it is required for univariate repeated measures (Stevens, 1996).

Intraclass correlation is a measure of the dependence among observations. The actual alpha value is the percentage of the time one is rejecting falsely if an assumption is violated. Intraclass correlation for pre-game and post-game stories was low (Cronbach's alpha = .02). It was also low for the control/post-game comparison (Cronbach's alpha = .02). The effect this has on actual alpha value also depends on the number of groups and the group size. The table of actual Type I error rates from correlated observations in (Stevens, 1996) shows that for a two group one way ANOVA, with a group size of thirty, when the intraclass correlation is .01 has an actual alpha value of .08.

This is the entry which most closely resembles this study. This is not unacceptably high. However Stevens suggests testing at a more stringent level of significance to compensate. For this reason, the nominal alpha value (significance level) for the comparison between pre-game and post-game stories is set at .01 rather than .05 (Stevens, 1996).

The second assumption is that the observations on the dependent variables have a univariate and multivariate normal distribution in each group. Stevens (1996) states that this is robust with respect to Type I error.

The results of the Shapiro-Wilks test for univariate normal distribution of the dependent variables in the three conditions are summarized in Appendix F. Although several of the distributions are not normal, the robustness of the test makes Type I errors from this source unlikely. The Mahalanobis distance test detected one multivariate outlier in the comparison between control stories and post-game stories and one in the comparison between pre-game and post-game stories (this procedure is recommended in (Coakes and Steed, 1997)). Stevens (1996) does not recommend removing the outliers unless there is reason to believe there is a measurement error. In this case there was not.

The third assumption is of homogenous population variances. This was tested by Levene's univariate test of population variance (which is robust with respect to non-normal distributions). This was non-significant for the control game comparison. Box's test of equality of covariance matrices were significant for the control/game

comparison but Stevens (1996) notes that this test is sensitive to non-normal distributions. Furthermore, he comments that if the group sizes are equal then even with violation of this assumption, the value of actual alpha is very close to the significance level (Stevens, 1996; p. 251).

The above discussion makes the case that the Type I error rate from violation of the assumptions of multivariate analysis is likely to be low if the significance level is raised to .01

7.3.4 Comparison of control stories to post-game stories

This section contains a quantitative comparison of the control stories to the post-game stories. The stories were analysed using the analysis scheme described in chapter four. The frequency in each category is normalised by the number of words in the story to allow comparison between stories. Table 7-4 shows the descriptive statistics for in the main categories and word count in the control and post-game stories. The mean frequencies of the main categories is graphed in Figure 7-8.

	Control stories		Post-game stories	
	Mean	Std Dev	Mean	Std Dev
Word count	628.095	304.860	399.524	204.67
Simple	12.060	2.630	8.441	2.521
Detailed	6.711	1.601	3.755	2.432
Figurative	0.372	0.435	0.010	0.228
Location	12.632	6.213	4.195	1.529
Action	7.980	2.936	6.953	2.52
Appearance	0.817	0.680	0.700	0.925
Speech	4.365	3.84	6.846	3.405
Moods overall	1.571	1.777	1.103	0.941
Relationship overall	1.170	0.663	2.523	0.977

	Control stories		Post-game stories	
	Mean	Std Dev	Mean	Std Dev
Personality overall	0.443	0.463	0.674	0.852

Table 7-4: Descriptive statistics for control and post-game stories.

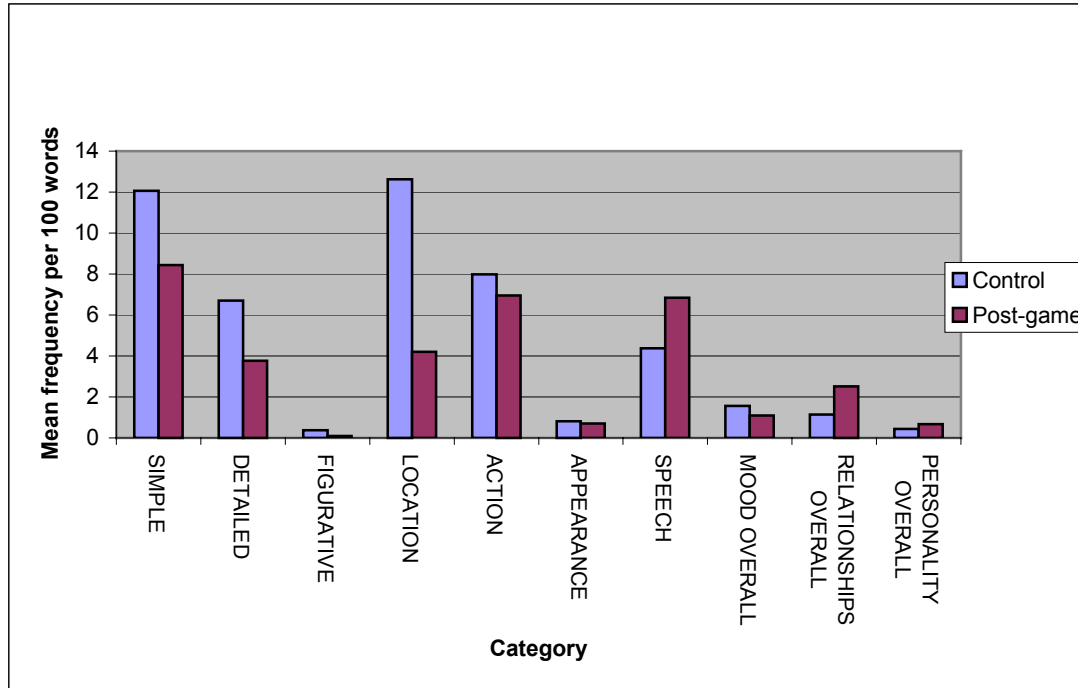


Figure 7-8: Mean frequencies of main categories in control and post-game stories.

Word count varies a lot between-subjects, as shown by the standard deviation of word count in Table 7-4. This gives a rough measure of the ability range of the subjects in the control group, although as noted in Section 7.3.1, length of story is not necessarily an indicator of quality for the post-game stories.

The graph confirms that **action** and **location** were the most commonly applied categories, as predicted in the description of the analysis scheme in Chapter Three. **Simple** use of language was more common than **detailed** language. **Figurative** language, **appearance** descriptions and **personality** descriptions were uncommon. This reflects a balance between descriptive writing and writing about events which is an appropriate to an action based story.

Overall, the multivariate analysis showed a significant effect for group (Wilk's Lambda = .192, $p = .000$). The tests of between-subjects effects for each of the dependent variables are summarised in Table 7-5. Differences between groups in word count, **simple**, **detailed**, **location**, and **relationships** were significant. All values are rounded to 3 decimal places and significant values are indicated by italics.

Dependent variable	F	Significance
Word count	8.137	.007
Simple	20.716	.000
Detailed	21.640	.000
Figurative	6.496	.015
Location	36.515	.000
Action	1.476	.232
Appearance	0.217	.644
Speech	4.905	.033
Moods overall	2.200	.146
Relationships overall	28.909	.000
Personality overall	1.196	.281

Table 7-5: Multivariate effects for control and post-game stories.

The hypothesis that Ghostwriter has an effect on the **relationships** in stories is confirmed but there is no significant effect on **moods** or **personality** in stories. The **relationship** category is investigated in more depth below. There were significantly more **location** codes applied to the control stories. The control stories were significantly longer than the post-game stories.

7.3.4.1 Relationships

This section explores the effect the virtual environment has on the relationship aspect of children's stories in more detail. Table 7-6 shows descriptive statistics for the

relationship sub categories in the story analysis scheme for control and games stories. This information is shown graphically in Figure 7-9.

	Control stories Mean	Control stories Std Dev	Post-game stories Mean	Post-game stories Std Dev
Relationship stated	0.29	0.37	0.25	0.27
Speech implies relationship	0.40	0.42	1.44	0.79
Mood implies relationship	0.01	0.06	0.2	0.35
Appearance implies relationship	0.01	0.03	0.01	0.07
Action implies relationship	0.42	0.31	0.63	0.47

Table 7-6: Descriptive statistics for relationship sub-categories.

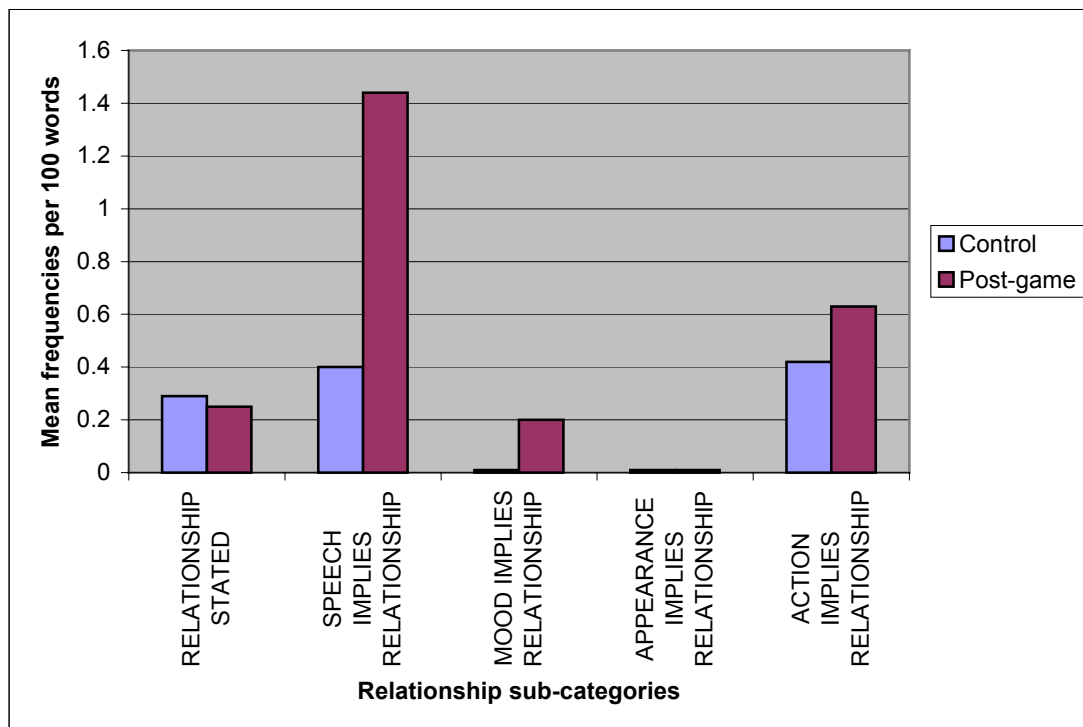


Figure 7-9: Frequencies of relationship sub-categories in control and post-game stories.

The proportion of **relationship** coded phrases per 100 words is very small, but again this is to be expected in action based stories. The relationships are usually **implied through speech, mood, appearance or action** rather than stated explicitly. There is a marked difference between the control and post-game stories for the speech implies relationship category.

Shapiro Wilk's test shows that only the **action implies relationship** and **speech implies relationship** categories have normal distributions. However, as none of the distributions are platykurtic (i.e. flattened), the increase in Type I error is acceptably small (Stevens, 1996). Box's test of equality of covariance matrices is significant but this is probably due to the non-normal distributions. Levene's tests of univariate variance is significant for only the **mood** variable. A multivariate analysis of variance with the **relationship** categories as dependent variables and group as the fixed factor showed significant differences overall between groups (Wilk's Lambda = .478, $p = .000$) The results of the between subject comparisons are summarised in

Table 7-7. All values are rounded to 3 decimal places and significant values are indicated by italics.

Dependent variable	F	Significance
Relationship stated	0.196	.660
Speech implies relationship	28.308	<i>.000</i>
Mood implies relationship	5.434	.025
Appearance implies relationship	0.112	.740
Action implies relationship	2.919	.095

Table 7-6: Multivariate effects for relationship sub-categories.

Only the **speech implies relationship** category was significantly different between groups. The post-game stories contained significantly more dialogue indicating relationships between characters.

In summary, the game treatment does appear to affect characterisation in stories in terms of relationships, particularly through dialogue. There was no effect for personality and moods in the stories.

7.3.5 Comparison of pre-game stories to post-game stories

This section compares the post-game stories to the pre-game stories using the story analysis scheme described in Chapter Three. This gives an indication of how the role-playing environment affected the performance of individual children. Frequency in each category is normalised by the number of words in the story to allow comparison between stories. Table 7-8 gives the descriptive statistics for the frequencies of the main categories and Figure 7-10 gives this information graphically.

	Pre-game stories		Post-game stories	
	Mean	Std Dev	Mean	Std Dev
Word count	325.00	233.92	399.52	204.67

	Pre-game stories		Post-game stories	
	Mean	Std Dev	Mean	Std Dev
Simple	10.81	3.36	8.44	2.52
Detailed	6.07	2.56	3.76	2.43
Figurative	0.47	0.54	0.10	0.23
Location	9.97	5.43	4.20	1.53
Action	5.76	2.85	6.95	2.52
Appearance	1.68	1.81	0.71	0.92
Speech	2.77	3.69	6.85	3.41
Moods overall	1.00	1.07	1.10	0.94
Relationship overall	1.23	1.29	2.52	0.98
Personality overall	0.44	0.59	0.67	0.85

Table 7-7: Descriptive statistics for pre- and post-game stories.

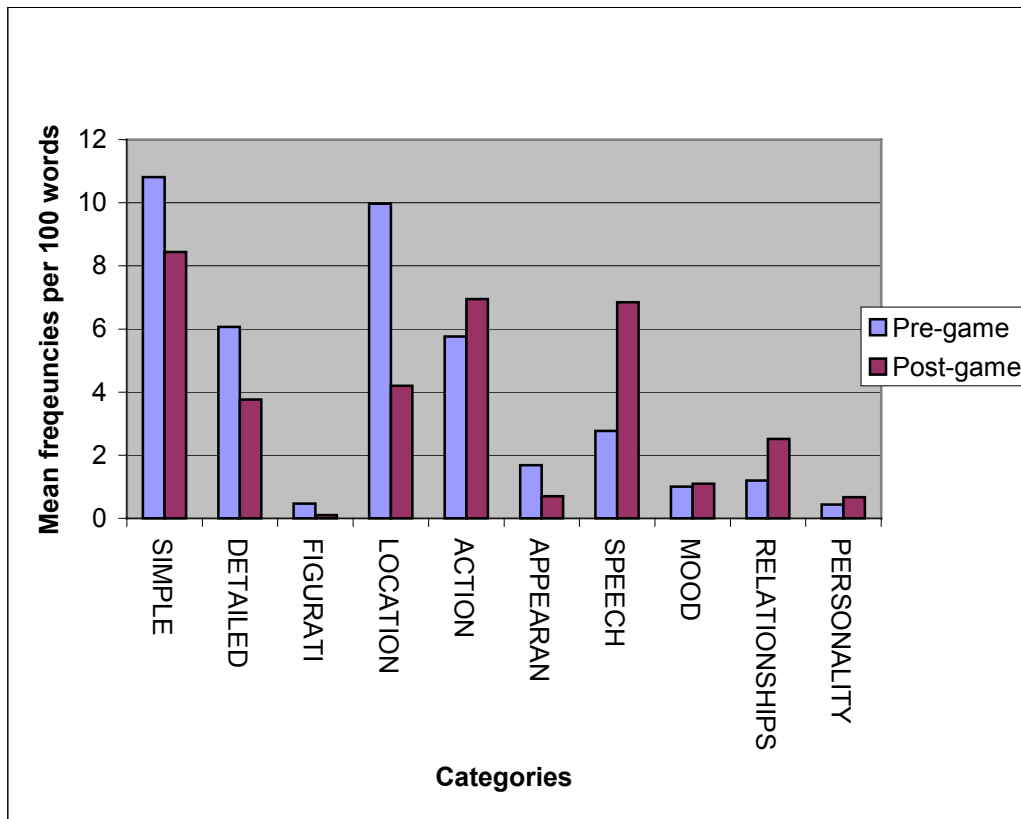


Figure 7-10: Frequencies of categories for pre-game and game stories.

Overall, the repeated measures multivariate analysis showed a significant effect for group (Wilk's lambda = .044, $p = .000$). The univariate tests of within-subjects effects for each of the dependent variables are summarised in Table 7-9. Differences between groups in the **detailed**, **location**, **speech** and **relationships** categories were significant.

Dependent variable	F	Significance
Word count	1.109	.305
Simple	5.978	.024
Detailed	17.411	.000
Figurative	7.460	.013
Location	24.963	.000
Action	1.985	.174

Appearance	7.443	.013
Speech	13.729	.002
Moods overall	0.101	.754
Relationships overall	14.405	.001
Personality overall	0.894	.356

Table 7-8: Univariate effects for pre- and post-game stories.

Once again, there were significantly more **relationships** in the post-game stories than in the pre-game stories. There was no effect for **mood** and **personality**, as in the control/game comparison. There was also significantly more **speech** in the post-game stories, whereas the post-game stories did not have significantly more **speech** than the control stories. There was no significant difference in length between the post-game stories and the pre-game stories. There were significantly more **location** descriptions in the pre-game stories than in the post-game stories, just as there were more **location** descriptions in the control stories compared to the post-game stories. The next section considers the effects of the virtual environment on the relationship sub categories.

7.3.5.1 Relationships

The descriptive statistics for the relationship sub categories are shown in Table 7-10 and Figure 7-11. As with the control/game comparison, there is a large difference between the groups in the **speech implies relationship** category.

	Pre-test stories		Post-game stories	
	Mean	Std Dev	Mean	Std Dev
Relationship stated	0.144	0.236	0.246	0.268
Speech implies relationship	0.517	0.936	1.438	0.786
Mood implies relationship	0.000	0.002	0.196	0.355

Appearance implies relationship	0.000	0.000	0.014	0.065
Action implies relationship	0.434	0.712	0.630	0.467

Table 7-9: Descriptive statistics for relationships sub-categories in pre-test and post-game stories.

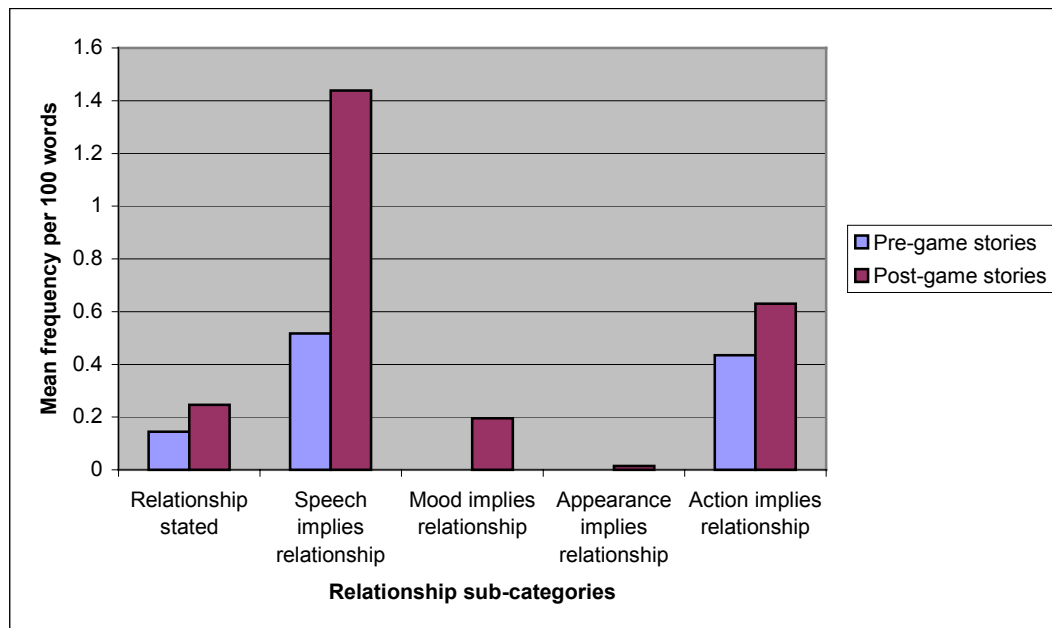


Figure 7-11: Mean frequencies for relationship sub-categories for pre-test and post-game stories.

Shapiro Wilk's test shows that only the **action implies relationship** and **speech implies relationship** categories have normal distributions. However, as none of the distributions are platykurtic the increase in Type I error is acceptably small.

A multivariate repeated measures analysis of variance shows no overall effect (Wilk's lambda = .501, $p = .35$).⁹ However, tests of within-subjects effects showed significant differences between groups for the **relationship stated**, **speech implies relationship** and **action implies relationship** categories (see Table 7-11).

Dependent variable	F	Significance
--------------------	---	--------------

⁹ Although the univariate test for relationships was significant in the overall analysis, this also included simple, detailed and figurative codes for relationships. Also, the multivariate result reported here takes into account the correlations between the sub categories of relationship, and the univariate result does not take account of this.

Relationship stated	37.706	.000
Speech implies relationship	52.696	.000
Mood implies relationship	6.438	.020
Appearance implies relationship	1.000	.329
Action implies relationship	38.865	.000

Table 7-10: Effects for relationship sub-categories.

It is necessary to conduct a post-hoc T-test to determine whether the general increase in speech in the post-game stories accounts for the increase in the **speech implies relationship** category. A paired T-test was carried out on the frequency of **speech implies relationships** story segments, normalised by the frequency of speech statements in the story overall. There were significantly more **speech implies relationship** segments in the post-game stories ($t= 5.727$; $p = .000$). This shows that the significant difference between the **speech implies relationship** sub-category in the pre-game and post-game stories is *not* simply due to the increase in the **speech** category between pre-game and post-game.

To summarise the above results: the stories written after using the virtual role-play environment were significantly different from pre-game stories written by the same pupils earlier in the term. Significant effects were found for the **location**, **relationships** and **speech** categories. The pre-game stories had more location descriptions than the post-game stories. The stories written after using the virtual environment had more relationships and in particular more dialogue indicating relationships than the control stories.

Once again, the game treatment does appear to affect characterisation in stories in terms of relationships, particularly through dialogue. There was no effect for the personality and moods in the stories.

7.3.6 Relationship between log files and stories

This section assesses the extent to which the pupils in the experimental group repeated or re-used the language they produced during the role-play in their stories. It is important to consider this because a potential criticism of using Ghostwriter as a preparation activity for story writing is that the pupils could simply repeat the language from the role-play session in their stories. If, for example, the pupils simply copied the dialogue from the log file from the role-play session, the quality of the language in their stories could be dependent on the quality of the role-play leader's language. Note, however, that it would be valid for a pupil to re-use his own language in a story because he generated it during the preparation phase.

The post-game stories were compared to the log files from the corresponding role-play session. Each sentence in a post-game story was compared to the analogous episode in the log file, and then classified as **verbatim**, **transformed** or **unrelated**. **Verbatim** sentences are those which are identical to dialogue sentences in the log file. **Transformed** sentences are those which have clearly been adapted from dialogue in the log file, by: summarising the content of a section of dialogue; by paraphrasing dialogue; by concatenating sections from different dialogue segments; by using language from a section of log file dialogue in a different context; or by extending a dialogue segment. **Unrelated** sentences are those which describe events in the game, or dialogue between characters using language which does not appear in the log file. Examples of these categories are given in Table 7-12.

	Verbatim	Transformed	Unrelated
Log file segment	Fred: Hey, you! Yes, you! Come here! I want to talk to you.	Fred: I suggest we go and see your grandmother. Hmm. Yes. That sounds like a good idea.	
Story sentence	“Hey, you! Yes, you! Come here! I want to talk to you”, the old	“Now let’s go back to the house with 99 windows and tell Bessie that the mission	In the mean time, Jenny wandered about the castle and met a strange looking character, half a goblin and

	man said.	is accomplished”	half an old man who turned out to Fred, Granny’s old friend.
--	-----------	------------------	--

Table 7-12 Examples of language re-use

The results of this analysis on twenty post-game stories (those which had corresponding log files) are given below.

Figure 7-9 shows the percentage of sentences in each pupil’s story which were repeated verbatim from the log file. Only seven of the pupils repeated language from the log file verbatim. The highest proportion of story sentences with verbatim re-use of language was 52%. It is worth noting that this pupil is one of the most gifted writers in the class (see Case Study E), and that her integration of the log file dialogue is skilled. The log file segments which were most frequently copied were Lady Searle’s speeches in which plot points were revealed. Some of the pupils reproduced their own comments from the game if they were particularly proud of them, for example “Die, you Fred-eater!”.

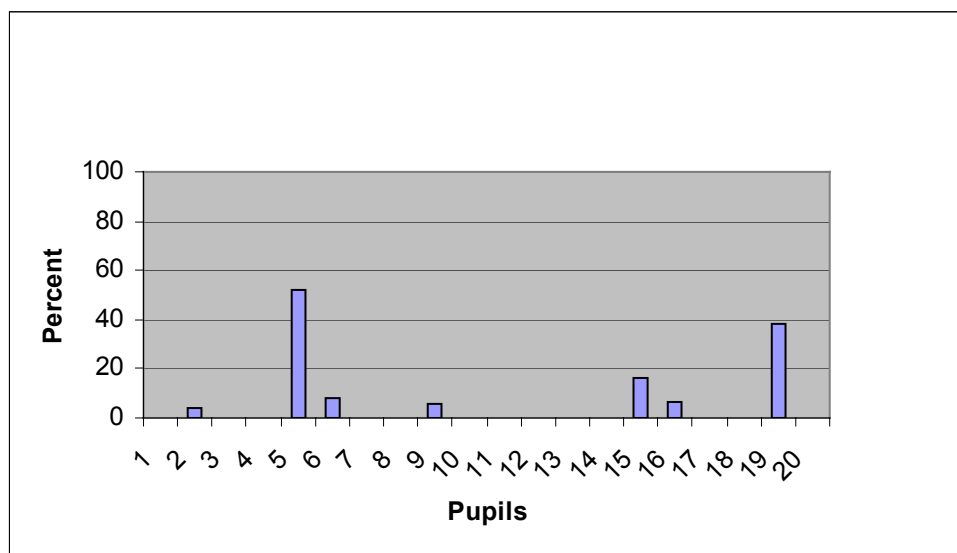


Figure 7-12 Proportion of story sentences repeated verbatim

Figure 7-12 shows the proportion of story sentences in each story which were transformed from dialogue segments in the log file. All but two pupils transformed the dialogue from the log files for re-use in their stories. The highest proportion of

transformation sentences was 31%. The most frequent type of transformation was summarisation, e.g. “The book gave him lots of instructions about his sister and said it could show him the way”. Paraphrasing and concatenation were also common, although it was unusual for the pupils to extend dialogue segments.

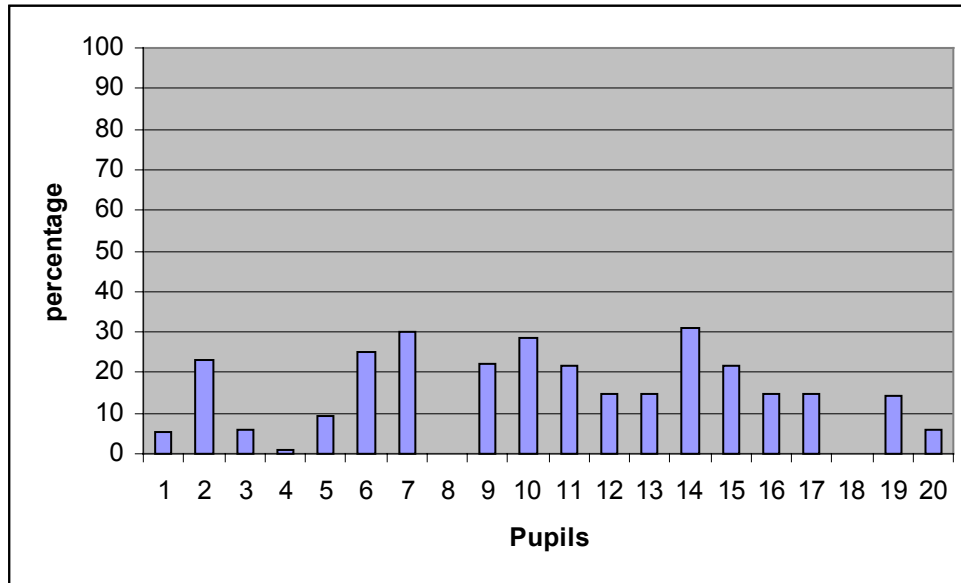


Figure 7-13 Proportion of story sentences transformed

Figure 7-13 shows the proportion of story sentences which are unrelated to the log files i.e. original sentences produced by the pupils themselves. Every pupil produced original language, and only two stories contained below 50% original language. The authors of these stories were two of the better writers in the study, assessed at levels D and E of the curriculum.

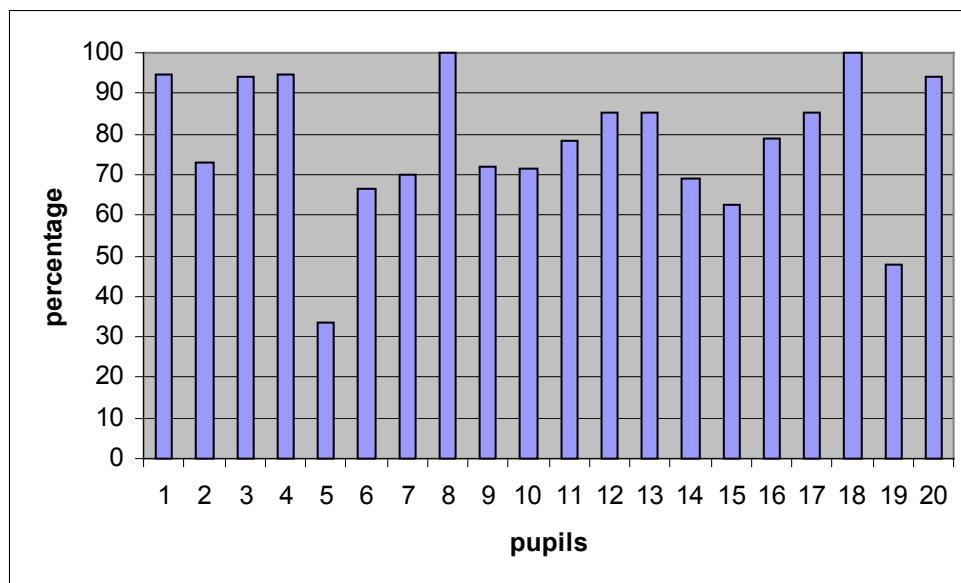


Figure 7-14 Proportion of unrelated story sentences

The results of the above analysis indicate that the post-game stories were not merely repetitions of the role-play log files. All the pupils generated a high proportion of new language for the stories, and most stories contained a low proportion of transformations from the log files. This shows that while the pupils were able to summarise, paraphrase, and concatenate segments of the log files for use in their stories, the majority of their stories contained original language. The pupils who re-used the log files most extensively were in fact among the most accomplished writers, which suggests that part of writing well is the ability to integrate material from other sources into a story.

An extension of the potential criticism that the pupils simply repeat the language given to them by the role-play leader could be that in providing an adventure for the children, Ghostwriter does not help the children develop imaginative ideas of their own. This is partially true; Ghostwriter was intended to help develop characterisation skills and so the plot ingredients were planned beforehand. However, the task of writing a story about Ghostwriter can be compared to writing a personal experience account. When writing a personal experience account of events, the author recounts rather than creates the plot in the same way that the pupils recounted the Ghostwriter plots in their stories. Furthermore, the post-game stories illustrate that the virtual

role-play experience does not stifle the children's creativity – seven of the experimental group pupils spontaneously adapted and extended the original plot episodes in creative ways. The story writing task could be adapted to further encourage the children to experiment with new plot possibilities.

7.3.7 Discussion and Summary

The story evaluation section evaluated the hypothesis that the use of Ghostwriter as a preparation activity would have a positive effect on the characterisation in stories written afterwards. This hypothesis was partially confirmed.

Stories written after using Ghostwriter had significantly more speech and relationships than pre-game stories. The relationships between characters in the stories were implied through the dialogue. It seems that interactions between game characters through typed dialogue in the virtual role-playing session were reflected in the stories written afterwards. However, there were no significant effect for moods or personality. It was also noted in the analysis of the game log files that there were a greater number of messages indicating relationships than personality or mood (see Section 7.2.1). Note, however, that the **moods** category has low inter-rater reliability ($r = .57$, see Chapter Three, Section 3.3.12.1). Future studies, with an increase in inter-rater reliability, may find different results for the mood category.

It is interesting that both the control and pre-game stories had more details about the story location than the post-game stories, because it was expected that the children would write a lot of descriptions of what they saw in the virtual environment. The greater number of location descriptions in the control stories may be due to the emphasis the class teacher placed on writing a story based in a local setting. However, the fact that there are significantly more location descriptions in the pre-game stories than in the post-game stories suggests that the effect is not simply due to the control group teacher's emphasis on location. The pre-game stories were written after classroom lessons from three different teachers, on a variety of topics. It could be that all the class teachers tended to concentrate more on location than they do on characterization issues. It could also indicate a trade-off between different story features. It seems reasonable that if one category is increased, another should

decrease accordingly. Perhaps focusing on dialogue and relationships distracted the writers of post-game stories from describing the setting of their story. The same explanation could be true for the less frequent use of detailed descriptions in post-game stories, compared to both control and pre-game stories. Note, however that the control stories were significantly longer than the post-game stories because the control group had longer to write them, and the increased editing time may have also increased the use of detailed descriptions in the control group stories.

Analysis of the way the pupils repeated and re-used the language from the virtual role-play session in their stories shows that a high proportion of the story sentences were completely unrelated to the dialogue in the log files. Most of the pupils were able to appropriately transform the language from the log files for re-use in their stories. Verbatim repetition of dialogue from the log files was uncommon.

In summary, the virtual role-play session has a positive effect on relationships in stories, particularly relationships implied through dialogue. There were fewer location descriptions in stories written after the role-play session, possibly because the children concentrated on writing about the relationships instead.

7.4 Teacher's Evaluation

This section contains a qualitative evaluation of the game, based on the observations of an experienced teacher during the virtual role-playing sessions. A full interview transcript is in Appendix C.

Mrs Munro taught for forty two years in Fife schools. She is a professional storyteller and often uses storytelling and drama in English Language teaching. She is now retired. In the course of the field study she observed twenty-four pairs of role-players and assisted the observer in interviewing the role-players afterwards. She also helped the children with any problems they encountered while writing their stories. Her opinion of the game and her assessment of its educational effectiveness complements the quantitative finding described in the rest of this chapter.

I asked Mrs Munro what she thought of the game. Her reply was positive:

“The game itself is so exciting because it is available, it has all the elements of a story in it- it has surprise, it has characterisation, it has decision making, it has suspense. And someone who is not computer literate can use it.”

In reply to a question about how the game would fit in with the curriculum , Mrs Munro mentioned that:

“One of the very difficult things is to encourage children to actually suspend their disbelief and write and for children who are not keen about writing, typing proved tremendous. I was so surprised that people who weren’t writing anything were willing to sit and type slowly and type their answers and their partner was willing to wait.”

This was a point that cropped up in previous discussions and later in the interview. The motivational power of the game and the children’s desire to communicate by typing messages was strong enough to encourage every child to make an effort. At a very basic level, the game encourages children to read and write (or type).

“Yes. I think there are so many potential for this because if people can recognise that writing with a pencil is sometimes a great deterrent; that learning styles are different and some people will enjoy working in a pair to create or will be able to learn by doing and being interactive I think this would be very good for teachers. I think if nothing else, it just shows teachers that there are other ways to develop writing or language or language teaching.”

She also said that the game could be linked with the personal, social and moral development curricula, art projects and environmental studies. She thought that the game could be extended to encompass real life scenarios as well as magical settings.

When asked about the effect the game had on the children, Mrs Munro mentioned the motivational effect again:

“Yes, because it gave them an “I can do it feeling”. There wasn’t anyone who came out from there not feeling positive, not feeling enabled, not feeling better.”

Mrs Munro was very positive about the game and is enthusiastic about future research in this area.

7.5 Case Studies

This section is intended to give the reader a flavour of how Ghostwriter affected individual pupils. There are 5 case studies; one for each level of the National Curriculum from A to E. The subjects of the case studies were chosen because I noticed them particularly during the role-play sessions or writing activities. The pupils are identified by a letter corresponding to their curriculum grade rather than their own names. The pupils vary not only in ability level, but in personality and attitude to school work. The intention is to show the types of pupil who might find Ghostwriter most helpful.

This qualitative analysis is based on my experiences with the children during the role-play session and while they wrote their stories. It also draws on Mrs Munro's assessment of the pupils' personalities and attitudes to school work. There is also a quantitative comparison of the story features of the pre-test story and the game story for each pupil.

7.5.1 Pupil A

Pupil A enjoyed playing the game and seemed enthusiastic about the writing task afterwards. She wrote her story with no help from either researcher or observer.

She had no difficulty with the game controls although she typed slowly. She seemed to enjoy the game and was enthusiastic about it afterwards. When asked about Fred she said "He sounded nice but he didn't look nice", a statement which neatly summarises a lot of the pupils' reactions to Fred.

Pupil A seems to be generally well disposed to school work. Mrs Munro was unable to remember enough about her to describe her personality, which also suggests that she is quiet and shy.

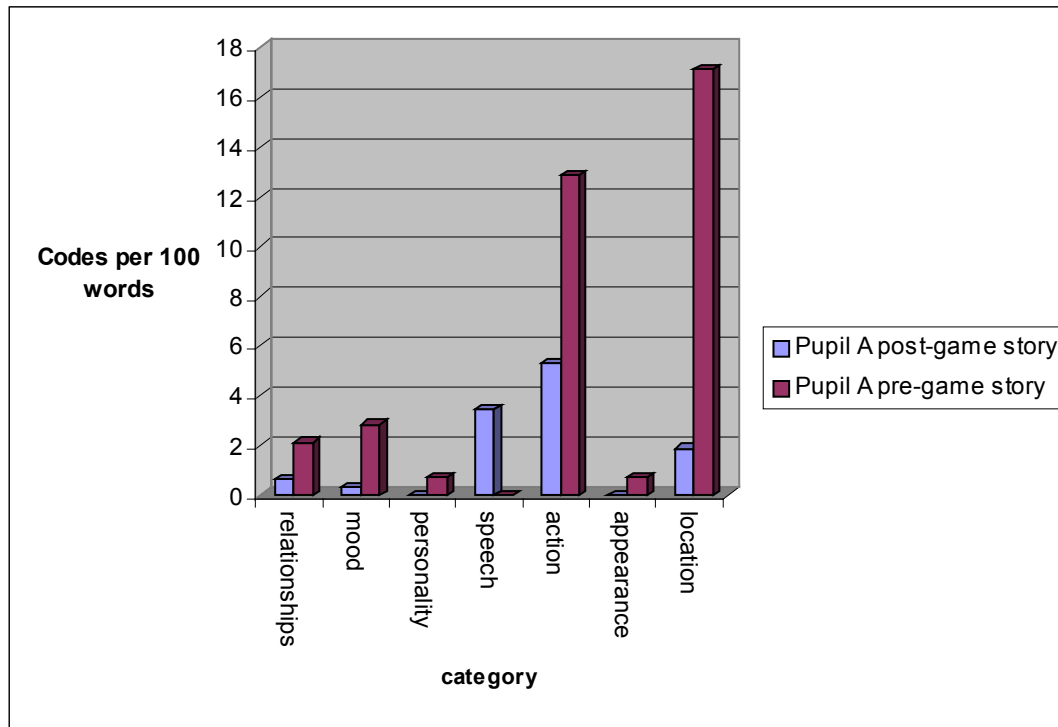


Figure 7-15: Codes per 100 words in Pupil A's stories.

It can be seen that Pupil A's post-game story is more than double the length of her pre-game story, suggesting that the game motivated her to write more than normal. The pre-supplied plot structure may also have contributed to story length, judging from the unelaborated, unrelated plot episodes in the pre-game story.

	Pupil A's post-game story	Pupil A's pre-game story
Word count	321	140
Codes per 100 words	10.59	38.57

Table 7-13: Pupil A comparison between pre- and post-game story.

Pupil A's game story reads like a personal experience, partly because it is written in the first person, and partly because it faithfully includes minor game events which are not important to the plot e.g. "Then we banged into Fred and Danny kept running away and Fred said "Let's go and find your gran".

Pupil A's post-game story has relationships implied through speech whereas her pre-game story does not exhibit this technique. In the post-game story, her Granny character mentions that she is bored because she has no-one to talk to, and that Jenny and Daniel are the only people who do talk to her. Pupil A has added these details from her own imagination, as they are not mentioned in the introductory sample. In the pre-game story, the relationships are mostly implied through actions, for example "A man came with his dog and he had a stick and hit him across the bum for stealing from the tree". The relationship implied through Granny's request in the post-game story shows more insight into and empathy with the characters than the more simplistic incident where the man catches the apple pilferers. It seems that the introductory sound sample prompted Pupil A into considering a realistic relationship.

Her Jenny character is clear that Lady Searle should not own the castle - " 'She says that the castle is hers'. I said at once 'It's not' and I found them.", - and she has no doubt that Lady Searle should die, although she makes no mention of Lady Searle's evil deeds.

The episode where Jenny meets Fred is slightly hard to follow; Pupil A does not explicitly state why Jenny should find Daniel and she forgets to mention Fred's warning about Lady Searle.

In spite of missing important plot points, the post-game story has a stronger plot-line than the pre-game story, which is really a mixture of several independent incidents relating to the theme of the main character's evacuation during the Second World War.

In summary, Pupil A's story writing appears to have benefited from the game in terms of the length of the story, plot coherence and the quality (but not quantity) of relationships in the story.

7.5.2 Pupil B

Pupil B was very excited about playing the game and enjoyed playing it. He and his partner became immersed in the game to the point that they would physically jump at

surprising game events and then laugh at themselves for it. Pupil B was the only person to spontaneously guess that the book was Lady Searle. His unusual descriptions of the characters in the interview after the game also showed that he is quite perceptive. Lady Searle is “A scavenger, like the shark”. The word “scavenger” captures the nastier aspects of Lady Searle quite nicely. He also described her as wearing a Chinese style dress which is a more inventive description than those offered by his classmates. He was also more explicit when he gave his reason for killing Lady Searle. He said “She was bad and bad people deserve to die.”

Pupil B had great difficulty concentrating on writing his story initially, although Mrs Munro made a point of giving him a pep talk and a chance to go outside and walk around to calm down a bit. Eventually she decided to scribe his story for him to try to keep him on task. This had the desired effect, because with someone there to write for him and to encourage him, Pupil B wrote an excellent story and he was proud of his work. His post-game story is about ten times longer than his pre-game story. This can partly be explained by his having a scribe, but he must have been highly motivated to make the effort to dictate so much.

Mrs Munro described Pupil B thus:

“[Pupil B is] very unsettled. He is insecure he needs a lot of attention, he demands a lot of attention. He behaves like a victim and therefore he is victimised.”

She had this to say about his attitude to school work:

“Well, he is quietly improving with help. But he doesn’t feel enthused and he feels that he can’t do things.”

Given the above personality assessment, it seems likely that at least some of the motivational effect stemmed from working in a small group with two enthusiastic adults and an easy going, cheerful partner. The dictation activity was successful in part because Mrs Munro is a skilful teacher and has a good deal of patience and compassion for Pupil B. The one on one attention is probably of great benefit to Pupil B, but his class teacher is unlikely to have time to provide this.

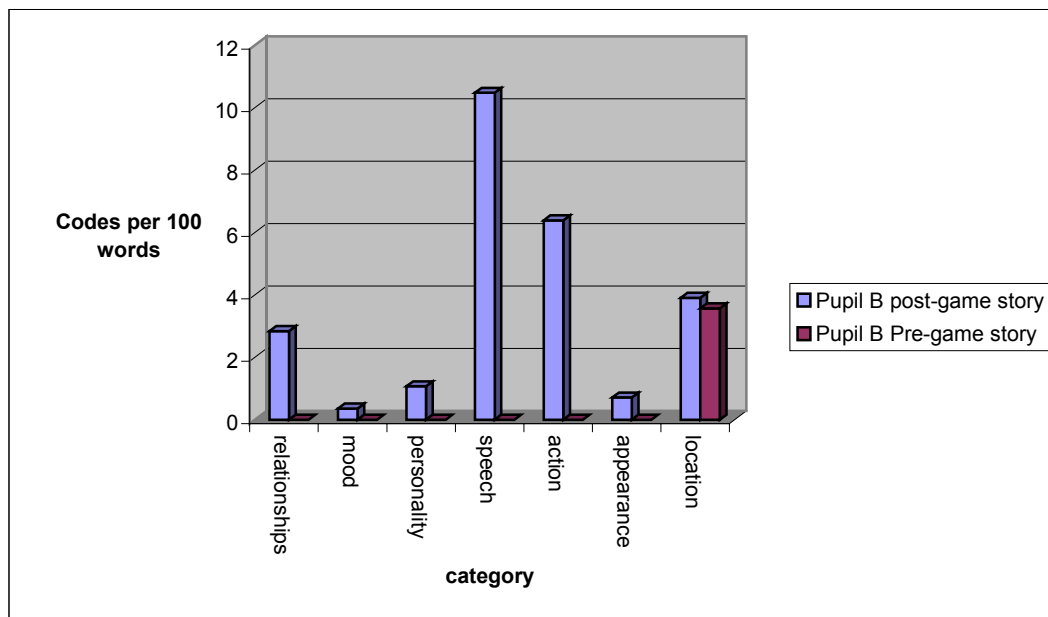


Figure 7-16: Codes per 100 words in Pupil B's stories.

	Pupil B's post-game story	Pupil B's pre-game story
Word count	563	56
Codes per 100 words	25.4	17.86

Table 7-14: Comparison of Pupil B's pre- and post-game stories.

Pupil B's pre-game story is an extreme illustrative example of his normal work patterns. Underneath his 56 words his teacher has written "You have done nothing else today!". It is possibly misleading to compare the categories in this pre-game story with the game story, given that he had only written a couple of setting sentences. It is worth noting that these sentences are rather good. They are quite atmospheric, and make use of repetition to achieve this effect. "There was not a sound but one sound, the sound of an owl. This was no ordinary owl. This was a magic owl".

The post-game story is imaginative both in the use of language and in the addition of another episode which did not happen in the game (Fred and Lady Searle meet and exchange threats). Some examples of the imaginative language are "the castle at the top of the crag and tail overlooking their village, Gantle", "She started to speak

strange words in a strange language. Then shook the cave with her blood-chilling laugh”.

The plot is coherent, and the story is easy to understand. The plot points are all explicitly explained, in contrast to many of the other post-game stories which leave the reader to infer important points, such as Lady Searle’s nasty nature. The dialogue is used to show the character’s motivations which in turn reveal plot points. The dialogue is often adapted from the game printout (Mrs Munro encouraged him to do this).

In short, the combination of the role-playing game with the positive environment and one-on-one attention had an astonishing effect on Pupil B’s productivity and enjoyment. The story he produced is far beyond National Curriculum Level B.

7.5.3 Pupil C

Pupil C thoroughly enjoyed playing the game. There was a power cut during his session, which interrupted the game for about fifteen minutes. We apologised for the delay and he said “It’s better than doing work”. He refused to believe that it *was* work. When he left the room after playing the game we heard him say to his partner “That was barry, eh?”.

During the role-play he liked Lady Searle’s sheer nastiness and was very pleased with his line to her “Die in hell”. He thought the characters were funny and sarcastic. In the interview afterwards he said that he liked looking for Fred and that thought Fred was helpful. He was certain that Lady Searle deserved to die for lying and killing Fred.

During the writing task Pupil C found it difficult to get started until Mrs Munro suggested that someone could take his dictation. The researcher worked with him initially, and Mrs Munro worked with him afterwards when he came back (of his own accord) to improve the story.

Pupil C comes from a background with a strong tradition of oral storytelling, and he may well find this medium more natural than writing stories. He dictated the story

first in a special “reading out loud voice” but he relaxed more into the mode of telling a personal experience anecdote. He told the story from start to finish as the researcher wrote it down and made encouraging noises, and then asked him if he had anything to add. The researcher read it back to him and he wanted to change various bits of it to make the plot more complete. The researcher suggested that he should ask his partner to fill him in on what happened when they were separated in the game, which he did. He completely re-told the story rather than editing. He finished the re-write with Mrs Munro.

Pupil C was very proud of his story and Mrs Munro and the researcher both made much of his achievement because Mrs Munro made it clear how rare it was. It was typed out for him and illustrated with some screen shots, and he showed it to his parents, teacher and a visiting researcher. The head teacher was impressed with the story. The class teacher mentioned that his behaviour was noticeably better around this time.

Again, although working in a small group with one on one attention will have had an effect on Pupil C’s motivation, the game seemed to capture his attention. An excerpt from the interview with Mrs Munro illustrates this:

Judy: So, during the time when you were scribing for Pupil C what did you think of his concentration and involvement in the story? And have you got anything to say about the quality of the story he produced.

Mrs Munro: His concentration was total. He was ready to say “Oh, that’s not good enough, wait a minute” and change it, he thought about it, he wanted to improve it. He was so pleased that he was actually doing something he was interested in. And he was just being positive all the time and he felt he succeeded.

Judy: To what extent do you think that was the effect of the game, and to what extent do you think was it the effect of having someone enthusiastic working with him?

Mrs Munro: You can be as enthusiastic as you like, but if you don’t have some material to work on, you have to get him first. You have to get him. He has to approve of the material. And this was his and he took ownership of it.”

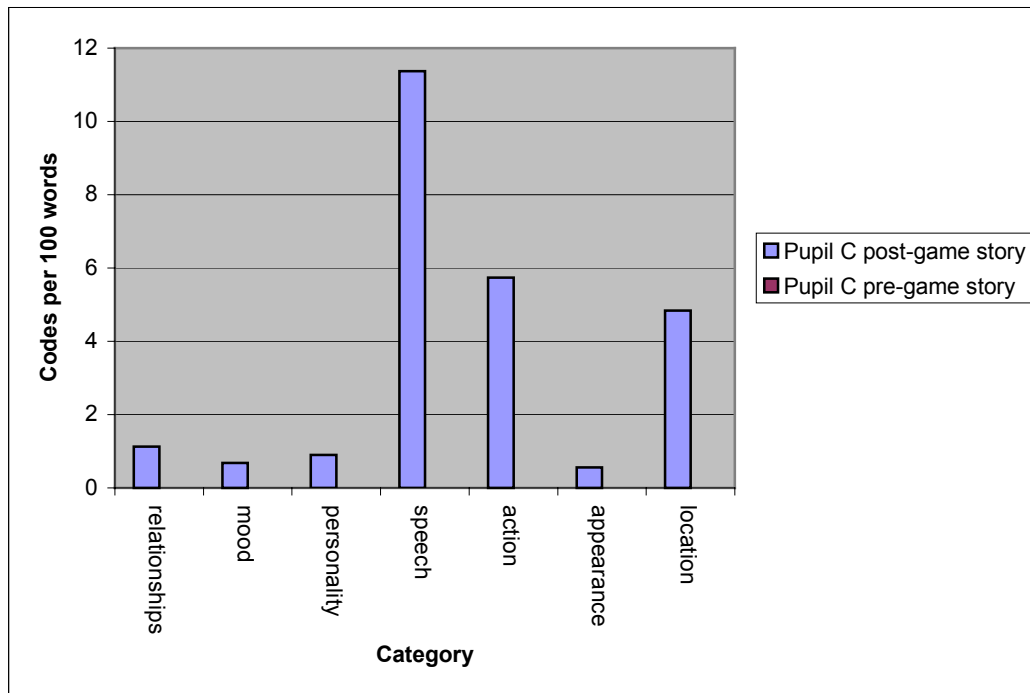


Figure 7-17: Codes per 100 words in Pupil C's stories.

	Pupil C's post-game story	Pupil C's pre-game story
Word count	888	42
Codes per 100 words	25.56	11.9

Table 7-15: Comparison of Pupil C's pre- and post-game stories.

Pupil C's pre-game story is very short and takes the form of a plot synopsis. His teacher has written "Pupil C wrote 3 sentences in one hour" at the bottom. The pre-test story was difficult to analyse – only a weather code and some object codes seemed to apply. In contrast, his post-game story is one of the longest stories in the game group. The plot is coherent, although he had difficulty incorporating Granny's message and the training activity with the rest of the plot (see section 7.3.2).

There is a lot of dialogue in the story. As he dictated, he did not refer to the game print out for ideas until the dialogue between Lady Searle and the children. The dialogue conveys the relationship between the characters in a colourful way e.g. "The witch was on her knees pleading "Please, please don't kill me and I'll give you

anything you want!”. Notice that this speech has been paraphrased from the recorded speech, and that Lady Searle’s pleading animation is standing up. It seems he is adding some details of his own.

In summary, Pupil C was extremely motivated by the game and his motivation helped him to concentrate on the writing task to such an extent that he far surpassed his normal performance, producing a readable, coherent story with good characterisation.

7.5.4 Pupil D

Pupil D and his partner’s role-playing was one of the most thoughtful role-play sessions. Pupil D was rather taken with Lady Searle in the book form (he thought she was a princess) and so he wanted to help Lady Searle at the end. His partner was definitely anti Lady Searle, and they had quite a discussion before deciding to kill her. See below (Pupil D is playing Daniel):

Lady Searle: you know me, don’t you?

Daniel: hello

Lady Searle: you remember how I helped you by guiding you about

Daniel: no

Lady Searle: oh my dear child!

Jenny: who are you

Lady Searle: I was in the book!

Jenny: what book

Lady Searle: perhaps your brother can explain

Daniel: yes I remember

Jenny: go on Daniel explain

Lady Searle: well, seeing as I helped you, you will help me wont you?

Jenny: no

Daniel: yes

Lady Searle: thank you Daniel

Jenny: why should we

Jenny: any way what would we have to do

Daniel: because she helped me

Jenny: any way why are you on her side you should be on mine

Lady Searle: Well my child. you have made the right choice it seems. You stood by me in spite of what your idiotic sister has been telling you. Now I must tell you. I am more than I seem. I am the Lady Searle, sorceress and mage. Soon I will control the castle and beyond. I will repay you for what you have done. You will survive, for a while. Your sister and that awful creature will have to go.

Jenny: idiotic am I

Lady Searle: oh yes

Daniel: no I will not help

Jenny: you should be quiet and not insult me

Lady Searle: Surely you don't believe what she's telling you. We're friends now. you're with me. Trust me.

Jenny: Daniel stay with me

Jenny: I'm your sister

Jenny: or do you not care

Jenny: about family

Daniel: what do you have against her

Jenny: nothing I just don't like her that's all

Lady Searle: what a nasty thing to say, Jenny

Daniel: o.k

Jenny: sorry

Lady Searle: perhaps you will both help me?

Jenny: no way Lady Searle

Jenny: and who made you boss

Daniel: do you want to help her

Lady Searle: well I did help Daniel

Jenny: we never shook hands on it

Lady Searle: true, but Daniel knows what is right

Jenny: Daniel should I kill her

Daniel: OK

It is clear from this excerpt, and from the interview afterwards that Pupil D was very involved in the story, had opinions about the characters and thought hard about what was right or wrong. He also enjoyed the adventure. When asked what he liked about the game, he replied "You got to talk to someone else and they could look after you, Trying to stay together. Jenny stood up for me."

Pupil D and his partner discussed their stories with each other, and wrote them quickly, with the minimum of fuss.

Mrs Munro could not remember Pupil D well enough to comment on his attitude to school or his personality. His class teacher referred to him as "one of the better

ones". During the role-play and interview session he seemed slightly shy, cheerful and interested.

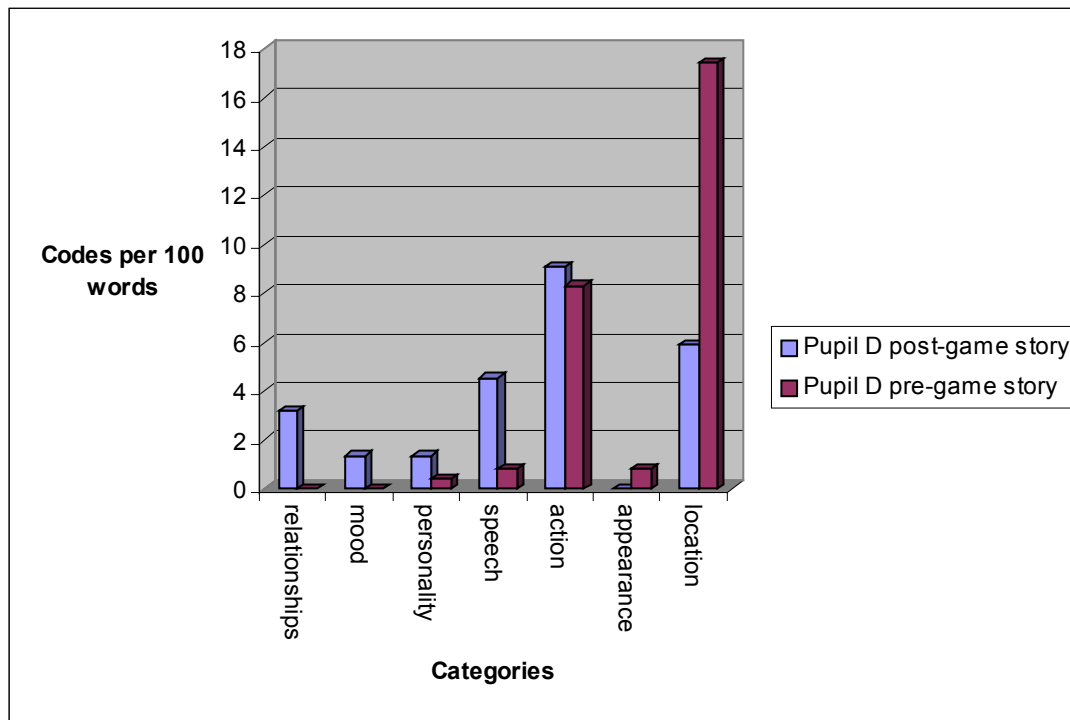


Figure 7-18: Codes per 100 words in Pupil D's stories.

	Pupil D's post-game story	Pupil D's pre-game story
Word count	220	241
Codes per 100 words	24.09	35.27

Table 7-16: Comparison of Pupil D's pre- and post-game stories.

Pupil D's pre-game story is of a similar length to his post-game story. However, the post-game story is a better story in many ways, as can be seen from the graph above. The pre-game story has a weak plot. It is unfinished; it ends just as what must be the main plot starts (the hero feels a hand on his shoulder in the darkness). Up until that point the story reads like a personal experience with a blow by blow account of playing in the park. In contrast, the post-game story has a coherent plot, with plot points explained with mention of the character's feelings or internal reasoning e.g. "then I changed my mind because she was going to kill me." The story differs from

the other post-game stories in that it summarises the conflict between the characters more than most of the other stories.

The pre-game story has no mention of the characters' feelings or reasoning, and there is no description of the relationship between them. There is a mention of the character's personality "he had a good personality" but it is extremely simple compared to the characterisation in the game story e.g. "I was glad to see Jenny because I was worried." and "Lady Searle was trying to convince me to go with her. Jenny was trying to get me to stay. I had to choose between my sister and someone that seemed really nice."

Pupil D engaged in a very thoughtful role-play session and the effect of this can be clearly seen in the depth of characterisation in his game story.

7.5.5 Pupil E

Pupil E's reaction to the game was markedly different from the other fifty-eight children who played the game. She said "It was interesting" and then went on to offer reasonably insightful comments in the fashion of a film critic.

Mrs Munro offered the following insight into Pupil E and her partner's mental outlook.

"Pupil E and partner are definitely intellectuals and they're practicing at being intellectuals so they took the game – they were enthusiastic – but they took the game in a detached way and it definitely, when they were answering the questions they were really thinking about things. Which could have been a bit off putting until you realised they had gone home and were absolutely child like in enthusiasm to their parents. [laughs]"

During the role-playing session Pupil E and her partner had some discussion about whether to kill Lady Searle, but they decided quite quickly without considering the reasons carefully. During the interview questions, Pupil E mentioned that Lady Searle was "a bit bland" and we had a brief discussion about whether the creator of the game should have made her more evil. The researcher tried to explain that Lady Searle reacts differently to different players, but Pupil E did not embrace the idea that

the characters could be realistic rather than very good or very bad. When in role, Pupil E was quite sure that Lady Searle should be killed because she was a witch and that is what happens to witches.

Pupil E enjoys writing stories; she is currently writing a novel with her game partner and another of their friends. It was no surprise that she was very eager to write the game story.

Pupil E's standard of literacy is outstanding, given her background. Mrs Munro explained:

“Pupil E is very intelligent. Pupil E is Iraqi, English is her second language but she is very confident, or appears very confident. She's very deep thinking. She's fun. And she is very motivated.”

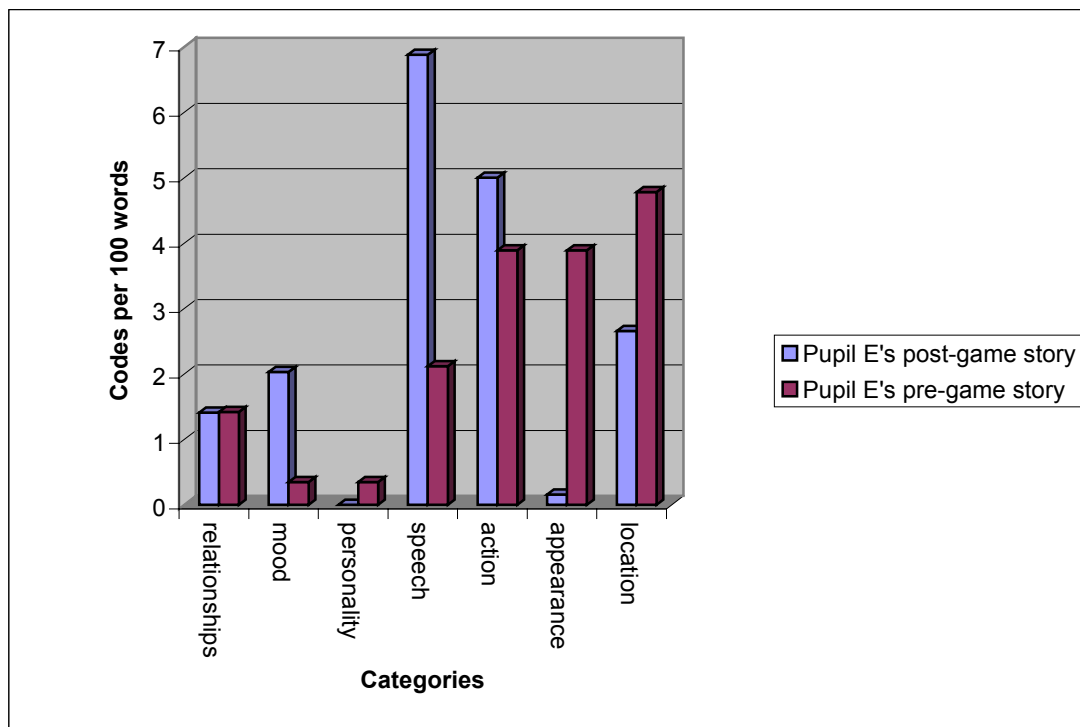


Figure 7-19: Codes per 100 words in Pupil E's stories.

	Pupil E's post-game story	Pupil E's pre-game story
Word count	640	565

Codes per 100 words	17.5	20.53
---------------------	------	-------

Table 7-17: Comparison of Pupil E's pre- and post-game stories.

Pupil E's pre-test story is very good. It has a lot of figurative location descriptions of the rain forest where the story is set. She uses the characters' appearances to suggest contrasts in their personality. She also uses foreshadowing techniques to suggest that some exciting event is going to happen later in the story, but unfortunately it is unfinished. The foreshadowing suggests that she was in control of the plot.

The game story contains more speech, some of which is copied from the game print out. It also contains more of the characters' feelings about their adventure e.g. "Jenny was glad not to be alone and so was Fred", "Jenny was isolated, and she knew that." than the pre-game story, where the heroes are a bit strong and silent about their plane crash.

Both the pre-game story and the post-game story are entertaining with a definite writing style. It is clear that Pupil E is very much in control of her writing and can create stylistic effects. The post-game story has more speech, and character's feelings in it, but because the pre-game story is not finished it is hard to say how it would have continued. It seems that Pupil E is already a skilled writer and so she does not really need the extra help from the game preparation activity. On the other hand, she might benefit from more practice at role-playing to explore character's reactions to circumstances.

7.5.6 Discussion

The cases studies represent a range of different abilities, attainment levels, attitudes to school work, concentration levels, and personalities. This section discusses some of these issues, drawing on case study material as well as the interview with Mrs Munro.

One of the strongest impressions I had after conducting the field study was that the children whose class teachers thought they might be a problem enjoyed the game and seemed to get a lot out of it. The problems the teachers anticipated were either

behaviour related or to do with low levels of literacy. Pupils B and C both have behavioural problems and don't like school. The game helped them to overcome these attitudes for long enough to produce good pieces of writing of which they were justifiably proud. There were other boys in the control group who are considered as potential "trouble makers" by their teacher who showed insight and quick thinking during the role-play sessions. They were able to bring skills to their school work which are not usually required, e.g. using a computer; judging character; persuading people into a course of action. Mrs Munro said:

"People with attention problems, who just really don't like the situation of school, this was a very focussing experience for them and therefore they wanted to and they did".

Pupils with lower levels of literacy seemed to surpass their normal performance when using Ghostwriter. This is true of the role-playing activity itself, which required a lot of reading and typing, and the story exercise afterwards. Mrs Munro mentioned a particular pupil who did very well at sending and receiving messages :

"He will go to a special school after the summer for his secondary education and he certainly produced something far far above what he would normally write."

Pupils A and B wrote stories after the game which were different to their normal stories. Pupil A's story had a more coherent plot and more thoughtful characterisation while Pupil B revealed that he has a high degree of creative ability when he is able to dictate his work rather than write it.

There is a sense in which Ghostwriter is of more benefit to the lower achieving or less motivated children. Motivated, high achieving pupils will learn to write well without further intervention. It would, however, be interesting to investigate the effect of deeper role-playing with the higher achievers. Pupils with higher literacy standards and better typing skills were more inclined to type more dialogue and could therefore discuss the moral decision more thoroughly.

All the role-players displayed uncanny concentration during the role-playing sessions. This was particularly evident in comparison to their concentration during

the more normal activity of writing a story. There is likely to be a novelty effect at work here; once the excitement has worn off the effect may well lessen. In addition, two adults had their attention focused on the role-players. Still, I believe that Ghostwriter is intrinsically motivating and that it encourages the pupils to concentrate very hard.

The interactions between the children's personalities and the game were also of interest. I noticed that some of the children who seemed shy in real life became more dominant in the game. Mrs Munro commented:

“in this role play it did mean that extroverts were fine, but introverts could blossom because they weren't themselves.”

There were some pairs where the normal classroom roles reversed inside the game. The leaders sometimes became the led, particularly where the usually dominant person had lower literacy than his partner. The camouflage supplied by the game characters and the computer mediation helped the children to express themselves more fully than they might in everyday interactions.

7.6 Chapter Summary

This chapter evaluated Ghostwriter with respect to its educational goals.

Ghostwriter was intended to encourage the participants to empathise with the story characters and to make difficult moral decisions. Evidence from transcripts of the game and interviews with the children after playing the game shows that all the children formed relationships with the game characters. Two-thirds of the children also made judgements about the character's personalities and one-third expressed emotional involvement during the game. Such evidence suggests that all the role-players experienced social presence and some experienced self presence. The children also made moral decisions about whether to kill Lady Searle and the majority could back up their decision with reasons. These reasons were mostly related to Lady Searle's attitude towards them and suggest that the children have different value systems to other adults who have played the game.

Analysis of the stories written after the game in comparison to both the control group and the pre-test stories shows that Ghostwriter encourages the children to write stories with relationships. These relationships are implied through the dialogue. Stories written after playing the game were less likely to have descriptions of the story setting; detailed descriptions or figurative language. This is possibly due to a trade-off between using different story features in one story.

In the opinion of an experienced teacher who observed the field study, the interaction style in Ghostwriter promotes literacy at a basic level; the children were sufficiently motivated by the game to read and type messages to each other. She also mentioned that the game had a positive effect on the children's morale.

The case studies and the subsequent discussion suggest that Ghostwriter is particularly beneficial to children with low motivation and little interest in school work. It also seems to benefit children with low literacy standards.

8 Further Work

8.1 Introduction

Various ideas for future work have been identified throughout this thesis. There have been suggestions for future empirical work with the virtual role-playing environment. Ideas for the development of new technological features have also been put forward, both for additions to the Ghostwriter environment itself and for pieces of educational story related software for children. This chapter develops these ideas in more detail and describes work which is currently underway (Section 8.2). Section 8.3 focuses on future empirical work, while Sections 8.4 and 8.5 concentrate on technological developments. A summary of future possibilities is given in Section 8.6.

8.2 Ongoing Work

This section outlines a recent separate field study which was conducted to formally evaluate the usability of the virtual role-play environment. This version of the role-play environment was voice based rather than text based; role-players communicated via walkie talkies. The new study took place in a state funded country primary school with thirty ten year old pupils. Mrs Munro, the observer from the previous field study, observed and assisted. In the voice version of the game, the role-players speak to each other using walkie talkies.¹⁰ An actress improvised the parts of Fred and Lady Searle live. This was intended to combine the flexibility of typed input in the current version of Ghostwriter with the emotional quality of the pre-recorded sound samples.

Analysis of these new results is ongoing, but the observers noted that: the role-players became emotionally involved in the role-play to a greater extent than in the previous text-based version of the game (increased self presence); the role-players tended to form stronger relationships (increased social presence); and that they appeared to be thinking more deeply about the decisions they made.

¹⁰ Note that software packages such as Microsoft Sidewind enable voice communication over a network and can be run in parallel with most computer games. However, it was decided to use walkie talkies because there was insufficient time to test whether the game would integrate properly with the voice software.

The usability evaluation was conducted in collaboration with Tim Marsh (University of York). While the informal observations of usability problems discussed in Chapter Six are useful, we decided that a more formal usability evaluation would give further insight into the aspects of the game which were particularly successful. This information could be used to improve Ghostwriter, but more importantly, it could be used to capture the children's experiences during the game. Data relating game features to users' experiences would be useful in the general design of children's games.

Marsh et. al. (2001) have developed a theory of effective interaction in virtual reality. This theory focuses on the user's experience in the virtual environment; it aims to capture usability problems which may distract the user from the illusion of non-mediation (Lombard and Ditton's definition of presence, 1997). Usability problems (breaks) occur at two levels. A first level breakdown is when the user is required to focus her attention on low level interface tasks, such as moving around the environment. First level breaks are caused by problems with graphics and hardware. Even while experiencing a first level break, the user is still in the illusion of the game world. Second level breakdowns are more serious and cause a break in the illusion. These breaks can be caused by serious problems with the technology (such as lag causing motion sickness); intrusion of the external world (such as loud background noise); and lapses in the user's attention (such as thinking about lunch).

Marsh has also developed a system for evaluating the user's experience of the game content. This has three strands: voyeuristic; vicarious; and visceral. Voyeuristic aspects of the game relate to the users' interest in the plot and their anticipation of seeing what will happen next. The vicarious aspect is the empathic experience of experiencing imaginative events through an avatar, and watching the actions of other virtual characters. Visceral aspects of the environment are instinctive sensations such as revulsion or excitement.

A questionnaire was administered to the pupils after they took part in a role-play session. The questions were intended to assess the extent to which different levels of

breakdown reduce the voyeuristic, vicarious and visceral aspects of the game experience. Analysis of the questionnaires is not yet complete.

An extension to this study would be to compare Ghostwriter to other commercially available computer games using Marsh's system for evaluating the user's experience of game content. It was noted in Chapter Six that it was difficult for the children who took part in the field study to express why they enjoyed playing their favourite commercial games, although they did give reasons for enjoying Ghostwriter. Interview questions based on Marsh's evaluation system would help us systematically compare children's experiences in Ghostwriter with commercially produced games such as Tomb Raider or Crash Bandicoot.

8.3 Future Empirical Work

This section considers further empirical work which would address research questions which were raised at various points in the thesis.

8.3.1 Formal comparison of voice and text

The preliminary study described in the previous section suggests that children find the voice version of the game emotionally involving, and that it encourages them to think carefully about the difficult decisions. Observations of role-play sessions in the text-based and voice studies suggest that the voice version is a more powerful tool for role-play. However, this should be formally confirmed. Furthermore, the effect of the voice version on children's stories has not yet been assessed. It would be interesting to discover whether the voice and text versions of the game have different effects on characterization in stories. It may be that the literacy level of the pupils is a factor here; children who find it difficult to express themselves through typing messages may gain a greater understanding of the characters through spoken improvisation. On the other hand, preparing for story writing with text-based role-play may be more useful because it allows the role-players to rehearse their written language.

8.3.2 Longer term effects of Ghostwriter

The field study described in Chapter Seven measured the effect of a single virtual role-playing session on children's writing. While the virtual role-playing session appeared to have an effect on the relationships and dialogue in the children's stories written immediately afterwards, it is an open question whether the effects would transfer to other stories. Does the use of the virtual role-playing environment teach children to write about relationships and include speech in all their stories? What would be the effect of using the virtual role-playing environment on a regular basis for a longer period of time, for example, during a term-long project? Would the children lose interest in the game once it lost its novelty? Or would they learn to use it even more creatively after practice with the interface? These questions could be addressed in a longer term study. It would be particularly interesting to monitor the effect of the environment on children with lower levels of literacy or low motivation as the expert evaluator maintains that these children benefited especially from playing Ghostwriter. Furthermore, it would be interesting to investigate a variety of ways in which Ghostwriter could be used to improve different aspects of writing. For example, the pupils could be asked to write the story from the point of view of a character they *didn't* play in the game. They could also be asked to set the Ghostwriter adventure in a different time or place, for example an alien planet, to encourage them to use their imaginations while writing the setting descriptions.

8.3.3 Peer learning with Ghostwriter

One criticism of the current version of Ghostwriter is that it requires a lot of time from the role-play leader. A class teacher would be unable to role-play with two children at a time. One possible solution to this would simply be to enlist adult volunteers to be role-play leaders remotely. Another solution would be to train older children or more experienced children to lead the role-play. This would be valuable experience for the "expert" children. Lady Searle and Fred are more difficult parts to play than Jenny and Daniel because they are responsible for conveying the plot. In addition, the role-play leader must encourage the other role-players to think deeply about their decisions by presenting obstacles to prevent "the easy way out". Is it

possible to teach children how to become role-play leaders? These issues are being addressed in the context of a project under the aegis of the Scottish Storytelling Centre. Part of the remit of this project is to investigate how to teach young people facilitation skills for leading storytelling groups. It is likely that there will be a set of facilitation skills common to storytelling and role-play.

If older pupils were taught facilitation techniques uncovered in the Storymakers project and given drama instruction to help with role-playing the characters, it is probable that they could be effective role-play leaders. This could be tested by further field study.

8.4 Possible adaptations of Ghostwriter

This section focuses on adaptations and improvements which could be made to the Ghostwriter environment.

Firstly, the environment should be revised to fix the bugs identified in Chapter Six. This involves: redesigning the message interface; fixing the problems with the inventory items; solving the sound problems; and fixing the scripted behaviour of Doggy and the sliths so that they do what they were designed to do. During the interviews, some of the children mentioned that they would like to see Granny in the game. This would require a model and animations for an old lady. It would also be useful if Fred and Lady Searle could meet in the game; to allow this the role-play leader would need to be able to control more than one character at the same time. This would require either the development of a script controlled character or an alteration to the interface to allow the control of a second character.

The following sections suggest more substantial additions to the environment.

8.4.1 Interface for expressing emotions

Currently the role-play leader can express Lady Searle and Fred's emotions by selecting from pre-recorded sound samples and gestures. It was pointed out in Chapter Five that the role-play leader has more material possibilities i.e. more scope

for interaction, than the role-players because they can only express themselves through typed text.

As discussed in Chapter Seven, the role-players do not often directly express their moods during the dialogue and the mood category is uncommon in the stories written afterwards. A facility for the role-players to express their characters' emotions might encourage them to think about their characters' feelings, become aware of the other characters' feelings and become more emotionally involved in the role-play.

A possible way of enabling this would be by introducing *emote* commands to describe actions in text, as in IRC. As pointed out in Chapter Five, this would place more demands on the children's literacy because it would require them to read, interpret and create textual actions for their characters. It would also result in a peculiar mixture of graphical and textual actions. The avatars would move, but there would also be written descriptions of gestures which would not match to the avatars.

A better solution would be to motion capture a range of emotionally expressive gestures for the children's avatars. These motion-capture subjects would be children who were trained in drama to overcome the embarrassment and difficulty experienced by the original child motion capture subjects.

This feature would require the development of an interface which would allow the children to select between emotions during the adventure. There is no current interface for this; the role-play leader selects sound samples which have been coupled with character gestures. This is a difficult interface to work with because one must remember the content of each of the samples by looking at a summary on a menu.

Assuming that the children used this feature, a further advantage would be that it could be used as an assessment tool for the user's vicarious experience in the virtual environment (see Section 8.2). It could be designed to log every selection of emotion during the adventure to give a readout of the user's or user's character's mood during the game.

8.4.2 Speech Synthesis

The role-play leader can portray Fred and Lady Searle through pre-recorded sound samples, but the role-players' characters are mute. Furthermore, for flexible dialogue the role-play leader improvises through typed text some of the time. This imbalance could be addressed with the use of speech synthesis.

The role-players and the role-play leader could improvise text which would then be synthesized for the other participants to hear. The text could also be displayed. This would be suitable for the story preparation activity because it would still require the role-players to type their contributions. It would perhaps be appropriate for children with lower literacy skills; hearing the text while reading it and hearing what they have typed would support their reading skills and so possibly allow them to participate more fully. Another advantage of speech synthesis is that it allows flexible dialogue compared to the pre-recorded sound samples.

A research question is whether it is possible to synthesize emotionally rich text and whether personality can be conveyed through synthesis.

8.4.3 Computer controlled versions of Lady Searle and Fred

Another extension of Ghostwriter would be the creation of computer controlled versions of Lady Searle and Fred. With this new feature, children could play with Ghostwriter at home by themselves. It would be a single player computer game with an emphasis on meaningful interactions with characters. In contrast to other commercially available computer games, it would have more suitable, morally responsible content for pre-teenagers.

The suitability of this version of Ghostwriter would depend on the believability of the computer controlled characters. They should behave in a socially realistic and emotionally plausible way; it would defeat the purpose if the children learned bad models of interaction from the characters.

There has been much research into believable or synthetic characters (see Bates, 1994; Reilly, 1997; Mateas, 1997; Valesquez and Maes, 1997; Rousseau and Hayes-Roth, 1997). This previous work could provide a starting point for producing computer controlled versions of Lady Searle and Fred. A comparison of the interactions between children with the computerized versions of Lady Searle and Fred; and interactions between children and a human role-play leader playing Lady Searle and Fred would obviously be desirable.

8.5 A virtual story authoring tool

This section suggests an educational system for children which also uses virtual environment technology. The idea that children could author material for new interactive stories in virtual environments was brought up in Chapter Four. The expert evaluator also suggested that it would be useful to have other themes for the role-play e.g. an adventure which is closer to the children's everyday lives. An authoring tool would allow children or teachers to create new settings, characters and plot-lines for virtual environments. However, the design of such an authoring environment would be extremely complex. The Unreal editor and Unreal script are designed to be used by level design and programming experts and even with these tools, it takes a very long time to produce a game. A more suitable candidate for adaptation would be the software development kit for Vampire: The Masquerade – Redemption. This kit has the facility to create new adventures for group of role-players. There is also a facility for a role-play leader to control a variety of characters for the role-players to interact with during the adventure. A child could design a new environment and then be a role-play leader while her peers took part in the role-play. The software development kit allows users to create new levels, create new characters and write scripts to control them. Of course, the interface to the kit is not designed for children; but it is designed for non-experts. It may be possible to adapt the interface to make it more suitable for children using the child centred design methodology used in a similar project (Storyrooms) by Alborzi et al. (2000). Developing a child friendly interface for creating an interactive story will require powerful story visualisation tools (possibly similar to the Agent Stories described in Brooks, 1999) and possibly the development of a visual language for specifying the

ordering of story elements. It may turn out that the creation of interactive stories in virtual environments is so complex that it is beyond the grasp of children.

8.6 Summary

This chapter has outlined some suggestions for extensions to the Ghostwriter project. Ongoing work on formal usability analysis of a voice version of the game was briefly described. There were suggestions for a longer term study to look at the lasting effects of Ghostwriter, possibly on lower ability children; a study to investigate whether children can learn to be role-play leaders for the environment; and a study to formally compare text based dialogue with voice dialogue.

There were also some suggestions for extensions to Ghostwriter, including a feature which allows the role-players to express their moods during the adventure; emotionally rich speech synthesis of improvised text; and the implementation and evaluation of computer controlled versions of Lady Searle and Fred based on previous work on believable characters.

Lastly, there is a suggestion for a project to investigate whether it is possible to build a child friendly authoring tool for virtual environments. This would empower children to create their own interactive adventures for virtual environments.

9 Conclusions

This final chapter summarises the primary contributions of the thesis, and relates them back to the main thesis questions put forward in Chapter One.

9.1 Contributions

The contributions of this thesis work can be summarized as follows:

- A review of theory and practice in children's imaginative writing instruction; techniques to help children prepare to write stories; and the use of drama as a preparation activity for story writing.
- A scheme for analyzing the characterization and setting in children's stories, with instruction for raters.
- A review of current research into narrative and computers, examining the questions: how can computer software be used to assist children in creating narratives?; and how can computers be used as a medium for storytelling?
- The design of a virtual environment, and the development of guidelines for designing such environments, drawn from story drama, and children's fiction.
- The adaptation of a commercial computer game to meet this design, including the creation of new characters, motion capture, script writing and sound recording.
- Results, from a classroom field study, indicating the effect of the virtual role-play environment on children's motivation, and their stories, and identifying the sorts of interactions which took place between the role-players and the story characters. These results are summarized in Section 9.2.

9.2 Findings

- The pupils who took part in the field study were extremely enthusiastic about playing the game. During the role-play sessions they were focused and on-

task. They particularly liked sending messages to each other, and trying to find game characters. The game compared favourably to the less character-based games with which many of the children were familiar.

- Case studies suggest that the game is particularly beneficial for pupils with low motivation and little interest in school work. This view is supported by an experienced teacher who took part in the field study.
- The children learnt to use the game very quickly; many of them were experienced at using games with similar controls. The main usability problem was the interface for sending and receiving messages. This interface requires redesign.
- The plot design was flexible enough to deal with the loss of several plot episodes due to implementation bugs. This flexibility was built in to the design in the form of a human role-play leader who can use his or her imagination to improvise around plot deficiencies.
- The log files from the virtual role-play sessions show that the pupils demonstrated concern for each other; requested each other's opinions; evaluated the personalities of game characters; and formed relationships with them. This positive result demonstrates that the virtual environment is suitable for role-playing. A further study would be required to explore the differences between real-life and virtual role-play sessions.
- There were no significant differences in the portrayal of moods or personality of characters between stories written after the game and stories written under normal classroom conditions (neither between- or within -subjects).
- Between-subject comparisons of stories written after the game and stories written under normal classroom conditions showed that stories written after the game portray more relationships, particularly more dialogue indicating relationships.

- Within-subjects comparisons of stories written after the game to stories written by the same pupils previously in the term showed that game stories portray more relationships, and include more dialogue; specifically, more dialogue indicating relationships.

9.3 Thesis Questions Revisited

This section relates the contributions and findings described above to the main thesis questions raised in Chapter One.

What is the effect of the environment on pupils' motivation?

“What do you know?” Haroun said. “I did it! I actually managed to get it done.”

Haroun and the Sea of Stories p. 172

One aim of the virtual role-play environment was to motivate pupils who dislike writing or find it difficult. The preparation activity was designed to capture the motivating aspects of commercial computer games while providing educational content. Interviews and observations during the field study indicate that the game was beneficial to children who find writing difficult, and to children who dislike writing.

The game was beneficial to children who find writing difficult in two ways. Firstly, the children enjoyed typing messages within the game, and persisted with this task in spite of their difficulties with the interface, typing and spelling. The teacher noted that having a real purpose for communicating seemed to motivate the children to make an extra effort at typing/writing. As discussed in Chapter Two, Bereiter and Scardamalia (1982) believe that one aspect of writing which children find difficult is the lack of a conversational respondent. Their writing strategies are adopted from spoken language where there is real time feedback from their conversation partner. In Ghostwriter, although the children type their messages, they get feedback from their partner in real time. This style of discourse lies somewhere on the continuum between spoken and written language. Although it was not the intention of this thesis

to explore this issue in depth, there are indications that taking part in real time written conversations may be a suitable scaffolding activity for novice writers.

Secondly, the preparatory virtual role-play activity appeared to motivate children who find writing difficult to invest effort into writing the story afterwards. This is indicated by the length of their stories, the quality of their stories, the concentration they displayed while they were writing, and the evaluation of the teacher. The game transcripts seemed to be useful for reminding them of what had happened during the game, although they tended to rework the dialogue before including it in their stories.

For the children who dislike writing and school in general, the tasks of sending messages in the game and writing about the game afterwards appeared to be more rewarding than normal writing activities. Although this effect could be due to the novelty of the environment, the amount of time children devote to playing commercial games suggests that educational activities based around such technology will be highly motivating.

Do the computer-mediated interactions between the users in the virtual environment support the aims of dramatic role-play?

“This was the secret of Wishwater: the harder you wished, the better it worked.”

Haroun and the Sea of Stories p. 70

One main aim of dramatic role-play is to encourage the role-players to take the perspective of someone else and therefore to gain insight into other people's attitudes and feelings in a particular situation. It was suggested in Chapter Two that computer-mediated role-play may be particularly suitable for breaking down the normal patterns of social interaction between pupils.

During the field study, the pupils appeared to be operating at stages two and three of Neelands' stages of drama development. That is, the pupils were operating in the drama world and responding to the events of that world as either their own self, or as Jenny or Daniel. As discussed in Chapter Seven, the children suspended their

disbelief during the game and responded emotionally to the game characters as though they were real people. Mostly they responded to the characters as themselves, although occasionally the role-players might say things from the perspective of Jenny or Daniel such as “Leave my sister alone”.

In Chapter Seven it was noted that the role-players were more inclined to type messages indicating their relationships to the characters than messages evaluating the characters’ personality or stating their own mood. However, many of the messages to Lady Searle implied an emotional response. When faced with the decision about whether to kill Lady Searle, most of the children discussed it with their partner, and were able to explain their reasoning afterwards.

In some cases the patterns of interaction in the friendship pairs were noticeably different inside and outside the virtual world. There is some indication that pupils who are able to express themselves fluently and rapidly through typed messages were dominant in the game interactions, regardless of the balance of power in their real life friendships. It also seemed to be the case that the more willing the role-players were to suspend disbelief and enter into the drama world, the more rewarding they found the role-play. Like Wishwater, the harder they pretended, the better it worked.

The link between social and self presence and the educational objectives of drama was explained in Chapter Four. The evidence from interviews and transcripts of the game supports the view that the role-players experienced social and self presence during the role-play. Computer-mediated role-play in a virtual environment does appear to support the educational aims of dramatic role-play.

However, observations from a recent study where the role-players interacted by speaking through walkie talkies (see Chapter Eight) suggest that the educational aims of the role-play might be *better* supported through computer-mediated spoken communication in the virtual environment. These role-players appeared to become more emotionally involved in the adventure and considered the difficult moral decisions more deeply than the role-players who typed their messages. There appears to be an increase in self and social presence when the difficulty of typing is removed.

There may, however, be a tradeoff between the aims of improving writing and supporting drama interactions. Communication through typing messages does appear to have a positive effect on pupils with lower literacy levels. It may be a motivating way to help pupils improve their writing. However, it may also be the case that these pupils' inability to express themselves rapidly and fluently through typed messages may prevent them from experiencing the full effect of the drama. This effect may not be as strong for older pupils; pupils who are able to type quickly; or students with high literacy levels. Different versions of the game could be used for different educational outcomes. A typing version would be beneficial as a motivating means of improving basic writing skill, while a voice version would be beneficial as a drama tool. Future work is required to determine the effect of the voice version on characterization in stories.

What effect does preparation in the virtual role-play environment have on the characterization and setting in children's stories?

The virtual role-play environment has an effect on both characterization and setting in children's stories. There were significantly more portrayals of relationships between story characters in the stories written after the game than in stories written under normal classroom conditions. These relationships were implied through dialogue between characters. During the role-play session, the pupils indicated their feelings and attitudes towards the game characters by typing messages to them. This prior exploration of the characters had an effect on their portrayal in the story. There was no difference in the portrayal of personality between game stories and normal classroom stories. This is likely to be related to the low incidence of statement of mood and evaluation of personality during the role-play session.

There were fewer descriptions of the story setting in the stories written after the game. This is unexpected; the striking graphics in the virtual environment were expected to motivate the children to include more descriptive passages. However, it may be that the virtual role-play encourages the children to focus on the characters rather than the setting of their story.

9.4 Conclusion

This thesis investigated the effectiveness of a virtual role-play environment as a story preparation activity. It provided evidence that it is possible both to motivate children to write stories, and to improve the characterization in their stories through a dramatic preparation activity in a virtual environment. This preliminary study has established that virtual environments are a fruitful area for future research in children's writing.

Everything ends.. dreams end, stories end.... "It's finished", we tell one another, "It's over. Khattam-Shud: The End."

Haroun and the Sea of Stories p. 39

References

- AAP (2000). *Assessment of Achievement Programme: The Fifth English Language Survey*. Scottish Executive.
- Alborzi, H., Druin, A., Montemayor, J., Sherman, L., Taxen, G., Best, J., Hammer, J., Kruskal, A., Lal, A., Plaisant Schwenn, T., Sumida, L., Wagner, R., Hendler, J. (2000). Designing StoryRooms: Interactive Storytelling Spaces for Children. In Conference proceedings on *Designing interactive systems: processes, practices, methods, and techniques*, pages 95-104.
- Amory, A., Naicker, K., Vincent, J., and Adams, C. (1998). Computer Games as a Learning Resource. In Proceedings of ED-MEDIA/ED-TELECOM 1998.
- Anderson D., and Casey M. (1997). The Sound Dimension. *IEEE Spectrum Special Issue on Distributed Virtual Environments*. (pp. 46-50).
- André, E., Klesen, M., Gebhard, P., Allen, S., and Rist, T. (2000). Exploiting Models of Personality and Emotions to Control the Behaviour of Animated Interface Agents. In Jeff Rickel, Editor, Proceedings of the workshop on "*Achieving Human-Like Behavior in Interactive Animated Agents*" in conjunction with the *Fourth International Conference on Autonomous Agents*.
- Bakunas, B. (1996). Promoting idea production by novice writers through the use of discourse-related prompts. *Applied Psycholinguistics*, **17**, pages 385-400.
- Bangert Drowns, R. (1993). The Word Processor as an Instructional Tool: A Meta-Analysis of Word Processing in Writing Instruction. *Review of Educational Research*, **63(1)**, pages 69-93.
- Banks, I., M. (1987). *Consider Phlebas*. Bantam Books.
- Bates, J. (1994). *The Role of Emotion in Believable Agents*. Technical Report CMU-CS-94-136, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA.

Benford, S., Bederson, B., Akesson, K., Bayon, V., Druin, A., Hansson, P., Hourcade, J., Ingram, R., Neale, H., O'Malley C., Simsarian, K., Stanton, D., Sundblad, Y., and Taxen, G. (2000). Designing Storytelling Collaboration Technologies to Encourage Collaboration Between Young Children. In *Proceedings of CHI2000*.

Bereiter, C. & Scardamalia, M. (1982). From Conversation to Composition: The Role of Instruction in A Developmental Process. In Glaser, R., Editor, *Advances in Instructional Psychology Volume 2*. Lawrence Erlbaum Associates.

Bereiter, C. and Scardamalia, M. (1987). *The Psychology of Written Composition* Lawrence Erlbaum Associates.

Bers, M. U., and Cassell, J. (1998). Interactive Storytelling Systems for Children: Using Technology to Explore Language and Identity. *Journal of Interactive Learning research*, **9**(2), pages 183-215.

Biber, D. (1986). Spoken and Written Textual Dimensions in English: Resolving the Contradictory Findings. *Language*, **62**(2), pages 385-411.

Biocca, F. (1997). The cyborg's dilemma: Progressive embodiment in virtual environments. *Journal of Computer-Mediated Communication* **3** (2).

Biocca, F., & Levy, M. R. (1995). *Communication in the age of virtual reality*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Blake, R. (2000). Not I, Not I but the Wind that Blows Through Me. In *The Proceedings of the International Workshop on Narrative in Interactive Learning Environments*. Edinburgh, Scotland.

Booth, D. (1994) *Story Drama* Pembroke Publishers, Ontario.

Britton, J., Burgess, T., Martin, N., McLeod, A., and Rosen. H. (1975). *The Development of Writing Abilities (11-18)*. MacMillan Education.

Bronte, C. (1847). *Jane Eyre*. Zodiac Publishing, London (reprint in 1946).

Bronte, E. (1850). *Wuthering Heights*. Penguin, USA (reprint edition, 1999).

- Brooks, K. (1999). *Metalinear Cinematic Narrative: Theory, Process and Tool*. PhD Dissertation, MIT Media Lab.
- Brna, P., and Cooper, B. (2000). Fostering cartoon-style creativity with sensitive agent support in tomorrow's classroom? In *Proceedings of ISSEI 2000*, Bergen, Norway.
- Bruckman, A. (1992). *Identity Workshop: Emergent Social and Psychological Phenomena in Text-Based Virtual Reality*. MIT Media Laboratory.
- Bruckman, A. (1997). *Moose Crossing Construction, Community, and Learning in a Networked Virtual World for Kids*. PhD Dissertation, MIT Media Lab.
- Bruckman A., and De Bonte, A. (1997). MOOSE Goes to School: A Comparison of Three Classrooms Using a CSCL Environment. *Proceedings of CSCL 97*.
- Bruner, J. (1986). *Actual Minds, Possible Worlds*. Harvard University Press.
- Bryson, J. (1999). Creativity by Design: A Character Based Approach to Creating Creative Play. In *AISB 99 Convention Proceedings*.
- Carr(1991). Dialogue, said the writer. In Fredette, J. M., Editor, *The Writer's Digest Handbook of Short Story Writing Volume II*. Writers Digest Books, Ohio.
- Carroll, L. (1865). *Alice's Adventures in Wonderland*. Grosset and Dunlat (reprint edition, 1946).
- Cassell, J., and Ryokai, K. (1999). Making Space for Voice: Technologies to support Children's Fantasy and Storytelling. *Personal Technologies*.
- Cazden, C. (1996). Selective traditions: readings of Vygostsky in writing pedagogy. In Hicks, D., Editor, *Discourse, learning and schooling*. Cambridge University Press.
- Clark(2000). *The Complete Storytelling Handbook*. At the Vampire Vault, <http://vampirevault.ign.com/thegame/storytelling/handbook-01.shtml>.

Crawford, C. (1999). Assumptions Underlying the Erasmatron Interactive Storytelling Engine. *Published in Fall Symposium on Narrative Intelligence of AAAI 1999.*

Coakes, S. and Steed, L. (1997) *SPSS: Analysis without anguish*. New York. Wiley and Sons.

Cooper, C. (1977). Holistic Evaluation of Writing. In Cooper, C. and Odell, L., Editors, *Evaluating Writing: Describing, Measuring, Judging*. State University of New York.

Cooper, M., and Benjamin, I. (1994). Dramatic Interaction in Virtual Worlds. In *Proceedings of the 2nd UK VR-SIG Conference, 1994*, pages 17-24.

Coupe, N. (1986). Evaluating Teacher's Responses to Children's Writing. In Harris, J. and Wilkinson, J., Editors, *Reading Children's Writing: A Linguistic View*. Allen and Unwin, London.

Crichton, M. (1999). *Jurassic Park* (Reissue Edition). Ballantine Books.

Czerniewska, P. (1992). *Learning about Writing*. Blackwell Publishers.

Dahl, R. (1990) *The Best of Roald Dahl*. Vintage Books, 1990.

Damon, W. (1999). The Moral Development of Children. *Scientific American*, August 1999, pages 56-59.

Danielewicz, J. (1984). The Interaction Between Text and Context: A Study of How Adults and Children Use Spoken and Written Language in Four Contexts. In Pellegrini, A. and Yawkey, T., Editors, *The Development of Oral and Written Language in Social Contexts*. Ablex Publishing Corp., New Jersey.

Dautenhahn, K. (1999). The Lemur's Tale - Storytelling in Primates and other Socially Interesting Agents. *Published in Fall Symposium on Narrative Intelligence of AAAI 1999.*

Dickens, C. (1843). *A Christmas Carol* (reissue edition, 1999). Bantam Classics.

Dickson, F. and Smythe, S. and Fredette, J. (Editors), (1991). *Handbook on Short Story Writing*. Writer's Digest.

Don, A. (1990). Narrative and The Interface. In Laurel, B., and Mountford, J., Editors, *The Art of Human-Computer Interface Design*.

Don, A. (1992). Anthropomorphism: From Eliza to Terminator 2. In *CHI '92*, pages 67-70.

P. Doyle, P. and Hayes-Roth, B. (1996). An Intelligent Guide for Virtual Environments. Stanford University Knowledge Systems Laboratory, KSL-96-20.

Druin, A., Montemayor, J., Hendler, J., McAlister, B., Revett, I., Plaisant Schwenn, T., Sumida, L., Wagner, R., Boltman, A., Fiterman, E., Plaisant, A., Kruskal, A., Olsen, O. (2000). Designing PETS: A Personal Electronic Teller of Stores. In *CHI'99*, pages 326-329.

Duran-Huard, R. and Hayes-Roth, B. (1996) *Children's Collaborative Playcrafting*. Knowledge System Laboratory Report No. KSL 96-17. Department of Computer Science, Stanford University.

Dunsbee, T. and Ford, T. (1980). *Mark My Words: A study of teachers as correctors of children's writing*. NATE, London.

Edge (1999). Outcast. *Edge Magazine UK*, **74**, pages 78-79.

Edge (1999a) Testscreen. *Edge Magazine UK*, **74**, page 77.

Edge (2000). Deus Ex. *Edge Magazine UK*, **88**, pages 96-97.

Ellis, S. and Friel, G. (1995). Aspects of the Craft of Writing. *Scholastic Writing Workshop: Imaginative Writing Key Stages 2/ Scottish Levels C-E*. Scholastic Ltd, England.

Ellis, S. and Friel, G. (1998). *5-14 Teacher Support: Learning to Write, Writing to Learn: Imaginative Writing*. Scottish Consultative Council on the Curriculum.

- Fidler, K. (1984). *The Desperate Journey*. Cannongate, Edinburgh.
- Flower, L. and Hayes, J. (1980). The dynamics of composing: making plans and juggling constraints. In Gregg, L.W. and Steinberg, E. R., Editors, *Cognitive Processes in Writing*. Lawrence Erlbaum Associates.
- Flower, L. (1994). *The Construction of Negotiated Meaning: A Social Cognitive Theory of Writing*. Southern Illinois University Press.
- Fort, M. (1999). Harry's Game. *Guardian Weekend*, June 26th 1999, pages 35-38.
- Fox, C. (1993). *At the Very Edge of the Forest: The Influence of Literature on Storytelling by Children*. Cassell.
- Funge, J., and Sapiro, S. (2000). Cognitive Multi-character Systems for Interactive Entertainment. In *Artificial Intelligence and Interactive Entertainment: Papers from the AAAI Symposium 2000*.
- Francis, D. (2000) *Slay Ride*. Jove Publishers.
- Galda, L. (1984). Narrative Competence: Play, Storytelling, and Story Comprehension. In Pellegrini, A. and Yawkey, T., Editors, *The Development of Oral and Written Language in Social Contexts*. Ablex Publishing Corp.
- Game Developer (1995). The Play's the Thing. In *Game Developer*, December 1995, pages 50-55.
- Gard, T. (2000). Building Character. *Game Developer*, May 2000.
- Gee, J. (1996). Vygotsky and current debates in education: some dilemmas as afterthoughts to *Discourse, Learning and Schooling*. In Hicks, D., Editor, *Discourse, Learning and Schooling*. Cambridge University Press.
- Glos, J. (1997). Rosebud: Technological Toys for Storytelling. In *Proceedings of SIGCHI '97* (ACM Special Interest Group on Human-Computer Interaction).

- Golding, W. (1975). *The Princess Bride.*, Ballantine Books (25th Anniversary Edition, 2000).
- Gorman, T., White, J., Brooks, G., Maclure, M., and Kispal, A. (1988). *Language Performance in Schools: Review of APU Language Monitoring 1979-1983.* Her Majesty's Stationery Office, London.
- Graves, D. (1983). *Writing: Teachers & Children At Work.* Heinemann Educational Books.
- Griffiths, M. (1998). Does Internet and Computer "Addiction" Exist: Some Case Study Evidence. In *IRISS '98: Conference Papers.*
- Griffiths, S. (1982). *How Plays are Made.* Heinemann.
- Gordon, G., and Hughes, D. (1995). *Best Short Stories of 1995.* Minerva.
- Gunter, B. (1998). *The Effects of Video Games on Children: The Myth Unmasked.* Sheffield Academic Press.
- Hall, N. and Robinson, A. (1995). Play, Writing and Composition. In *Exploring Writing and play in the Early Years.* David Fulton Publishers.
- Hamilton, M. and Weiss, M. (1990). *Children Tell Stories: A Teaching Guide* Richard C. Owen Publishers, Katonah, NY.
- Harding, C. (2000). Vampire: The Masquerade- Redemption. In The Adrenaline Vault at <http://www.avault.com/reviews>.
- Harrower, D. (1999). Personal communication.
- Heeter, C. (1992). Being there: The subjective experience of presence. *Presence: Teleoperators and Virtual Environments.* 1(2), pp 262-271.
- Herbert, F. (1968). *Dune.* Hodder and Stoughton General.

Hidi, S., and Klaiman, R. (1984). Children's Written Dialogues: Intermediary Between Conversation and Written Text? In Pellegrini, A. and Yawkey, T., Editors, *The Development of Oral and Written Language in Social Contexts*. Ablex Publishing Corp.

I3 Net Workshop on Children and Narrative, Barcelona, 1999.

John, V., Horner, V., and Berney, T. (1970). Story Retelling: A Study of Sequential Speech in Young Children. Levin, H. and Williams, J., Editors, *Basic Studies in Reading* Basic Books Inc. Publishers.

Jacques, B. (1999). *Seven Strange and Ghostly Tales*. Paper Star.

Jennings, P. (1997). *Thirteen Unpredictable Tales*. Puffin Books.

Kardash, C., and Wright, L. (1987). Does Creative Drama Benefit Elementary School Students: A Meta-Analysis. *Youth Theatre Journal*, **1**(3), pages 11-18.

Kiesler, S., Siegel, J., and McGuire, T. (1984). Social Psychological Aspects of Computer-Mediated Communication. *American Psychologist*, **39**(10), pages 1123-1133.

Klesen, M., Szatkowski, J. and Lehmann, N. (2000). The Black Sheep - Interactive Improvisation in a 3D Virtual World. In *Proceedings of the i3 Annual Conference 2000*.

Labov, W., and Waletzky, J. Narrative Analysis: Oral Versions of Personal Experience. In Helm, J. (Editor). *Essays on the Visual and Verbal Arts*. University of Washington Press. (pp 12-44).

Laurel, B. (1991). *Computers as Theatre*. Addison Wesley.

Laurel, B., Strickland, R. and Tow, R. (1998). PLACEHOLDER: Landscape and Narrative in Virtual Environments. *Digital Illusion*. Dodsworth, C. (Editor) ACM Press, New York, NY, pp. 181 – 208.

Lawrence, D. H. (1995) *Lady Chatterly's Lover*. Reissue Edition, New American Library.

- Lee, H. (1960) *To Kill a Mocking Bird* Reader's Digest Association, Pleasantville (reprint, 1993).
- Le Guin, U. (1979). *The Earthsea Trilogy*. Penguin, London.
- Lensmire, T. (1994). Writing Workshop as Carnival: Reflections on an Alternative Learning Environment. *Harvard Educational Review*, **64**(4), pages 371- 391.
- Lester, J., Converse, S., Kahler, S., Barlow, S., and Bhogo, R. (1997). The Persona Effect: Affective Impact of Animated Pedagogical Agents. In *CHI'97*.
- Levenson, R. W., and Rauf, A. M. (1992). Empathy: A physiological substrate. *Journal of Personality and Social Psychology*, **63**, pages 234-246.
- Lewis, C. S. (1950) *The Lion the Witch and the Wardrobe* Econo-Clad Books (Reprint, 1999).
- Lombard, M. and Ditton, T. (1997). At the heart of it all: the concept of presence. *JCMC* **3**(2).
- McLeod, R. (1992). 23 "IV Storybase": Using Interactive Video to Develop Creative Writing Skills. In Holt, P. and Williams, N. (Editors). *Computers and writing : state of the art*. Oxford, England : Intellect.
- Machado, I., and Paiva, A. (1999). Heroes, Villains, Magicians, ...: Believable Characters in a Story Creation Environment. In Proceedings of the AIED workshop on Life-like Pedagogical Agents, Le Mans 1999.
- Machado, I., Martinho, C., and Paiva, A. (1999). Once upon a time. Published in Fall Symposium on Narrative Intelligence of AAAI 1999.
- MacKay Brown, G. (1995). *Winter Tales*. John Murray Publishers, London.
- MacRorie, K. (1980). *Telling Writing*. 3rd Edition. Hayden.
- Madigan, R., Linton, P. and Johnson, S. (1996). The Paradox of Writing Apprehension. In Levy, C. and Ransdell, S. (Editors) *The Science of Writing:*

Theories, Methods, Individual Differences and Applications. Laurence Erlbaum Associates, New Jersey.

Marsh T., Wright, P. and Smith, S. (2001). Evaluation for the Design of Experience: Modelling Breakdown of Interaction and Illusion, *Journal of CyberPsychology and Behavior, Special Issue on Presence* (Submitted).

Mateas, M. (1997). *An Oz-Centric Review of Interactive Drama and Believable Agents*. CMU-CS-97-156.

Mateas, M. (2000). A Neo-Aristotelian Theory of Interactive Drama. Artificial Intelligence and Interactive Entertainment: Papers from the AAAI Symposium 2000.

Martin, N. (1983). Scope for intentions. In Freedman, A., Pringle, I., and Yalden, J., Editors, *Learning to Write: First Language/Second Language*. Longman.

McGregor, L., Tate, M., and Robinson, K. (1977). *Learning Through Drama: Report of the Schools Council Drama Teaching Project (10-16)*. Heineman Educational Books.

McMahon, H. , O' Neill, B., and Cunningham., D. (1991). Bubble Dialogue – A New tool for Learning and Research. In Proceedings of *CAL 91*.

McNamee, S. (1999). Computer and video games: special objects or everyday artefacts in children's worlds? Presented at *European Sociological Association 1999 Will Europe Work Conference*, Stream V.2. – Sociology of Childhood.

Miller, J. (1993). Script Writing on a network computer: Quenching the flames or feeding the fire? In Bruce, B., Peyton, J., and Batson, T. , Editors, *Network-based Classrooms: Promises and Realities*. Cambridge University Press.

Mitchell, M. (1996). *Gone With the Wind*. Reprint Edition, MacMillan Publishing Corporation.

Moore, E., and Caldwell, H. (1993). Drama and Drawing for Narrative Writing in Primary Grades. In *Journal of Educational Research* ,**87**(2), pages 101-109.

- Morningstar, C., and Farmer, F. R. (1990). The Lessons of Lucasfilm's Habitat. In Benedikt, M., Editor, *Cyberspace: First Steps*. MIT Press, Cambridge, Mass.
- Murray, J. (1997) *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. The Free Press.
- Neelands, J. (1998). *Beginning Drama 5-14* . David Fulton Publishers, Ltd.
- O'Donnell, E. (1911). *Scottish Ghost Stories*. Paul, Trench, Trübner & Co.
- O'Neil, W. and Ocampo, J. (1999). *Game Cliches That Just Won't Die*. Available at Gamecenter.com.
- Pausch, R., Snoddy, J., Taylor, R., Watson, S., and Haseltine, E. (1998). Disney's Aladdin: First Steps Towards Storytelling in Virtual Reality. In Dodsworth, C., Editor, *Digital Illusion: Entertaining the Future with High Technology*. Addison Wesley.
- PCZone (2000). Star Trek Voyager, Elite Force. *PC Zone Magazine* ,94.
- PCZone (2000b). American McGee's Alice. *PC Zone Magazine* ,94.
- Pisan, Y. (2000). Building Characters: A Form of Knowledge Acquisition. In *Artificial Intelligence and Interactive Entertainment: Papers from the AAAI Symposium 2000*.
- Plaisant, C., Druin, A., Lathan, C., Dakhane, K., Edwards, K., Vice, J.M, Montemayor, J. (2000). A Storytelling Robot for Pediatric Rehabilitation. In *Proceedings ASSETS' 00*, ACM.
- Plowman, L., and Luckin., R. (1999). Designing Multimedia for Learning: Narrative, Guidance and Narrative Construction. In *Proceedings of CHI'99* Pittsburgh, PA.
- Poleg, S. (1998) *Unreal Creature Care and Feeding Guide*. Available at <http://www.unreal.com/support/index.html>

- Preece, J. (1998). Empathic Communities: Reaching Out Across the Web. *ACM Interactions*, March and April 1998.
- Price, E., and Takala, S. (1988). The Narrative Writing Task. In Gorman, T., Purves, A, and Degenhart, R. , Editors, *The IEA Study of Written Composition 1: The International Writing Tasks and Scoring Scales*. Pergamon Press.
- Price, W. (1980.a). *South Sea Adventure*. Reprint Edition.,Albert Britnell Book Shop.
- Price, W. (1980.b) *Amazon Adventure*. Reprint Edition.,Albert Britnell Book Shop.
- Price, W. (1980.c) *African Adventure*. Reprint Edition.,Albert Britnell Book Shop.
- Provost (1991).Writing powerful dialogue. In Fredette, J. M., Editor, *The Writer's Digest Handbook of Short Story Writing Volume II*. Writers Digest Books, Ohio.
- Rankin, I. (1998). *Let it Bleed*. St Martins Press.
- Ransdell, and Levy (1996). Working Memory Constraints on Writing Quality and Fluency. In Levy, C. and Ransdell, S. (Editors) *The Science of Writing: Theories, Methods, Individual Differences and Applications*. Laurence Erlbaum Associates, New Jersey.
- Reilly, S. (1997). A methodology for building believable social agents. *Online Proceedings of the ACM Autonomous Agents '97*.
- Rheingold, H. (1993). *The Virtual Community*. Addison Wesley Reading, MA.
- Rist, T. (2000). Exploiting Ideas from Improvisational Drama in the Context of Automated Presentation Systems with Life-Like Characters? In *The Proceedings of the International Workshop on Narrative in Interactive Learning Environments*. Edinburgh, Scotland.
- Rizzo, A., and Saudelli, B. (1999). POGO. Pedagogical issues in designing narrative technology. In proceedings of *i3 Annual Conference*, Sienna, October 1999, pages 36-40.

Robertson, J., Good, J. and Pain, H. (1998). BetterBlether: The design and evaluation of a discussion tool for education. *International Journal of AI in Education*, **9**, pages 219-236.

Robertson, J., de Quincey, A., Stapleford, T. and Wiggins, G. (1998). Real-time music generation for a virtual environment. Presented at the *ECAI 98 Workshop on AI/Alife and Entertainment*.

Rousseau, D. & Hayes-Roth, B. (1997). *Improvisational Synthetic Actors with Flexible Personalities*. Knowledge Systems Laboratory Report No. KSL 97-10, Department of Computer Science, Stanford University.

Roussos, M., Johnson, A., Leigh, J., Barnes, C., Vasilakis, C., and Moher, T. (1997). The NICE project: Narrative, Immersive, Constructionist/Collaborative Environments for Learning in Virtual Reality. In *Proceedings of ED-MEDIA/ED_TELECOM 1997*, pages 917-922.

Rowling, J.K. (1997). *Harry Potter and the Philosopher's Stone*. Bloomsbury, London.

Rowling, J.K. (1998). *Harry Potter and the Chamber of Secrets*. Bloomsbury, London.

Rowling, J.K. (1999). *Harry Potter and the Prisoner of Azkaban*. Bloomsbury, London.

Rowling, J.K. (2000). *Harry Potter and the Goblet of Fire*. Bloomsbury, London.

Roy, A. (1998). *The God of Small Things*. Harper Collins.

Rushdie, S. (1990). *Haroun and The Sea of Stories*. Granta Books.

Sachs, J., Goldman, J., and Chaille, C. (1984). Planning in Pretend Play: Using Language to Coordinate Narrative Development. In Pellegrini, A. and Yawkey, T. , Editors, *The Development of Oral and Written Language in Social Contexts*. Ablex Publishing Corp.

Scholastic Writer's Workshop. (1995), Scholastic Publishing.

SCRE (1995). *Taking a Closer Look at Writing: Education 5-14 English Language Diagnostic Procedures*. Scottish Council for Research in Education.

Scottish Executive (1999). *Improving Writing 5-14*. Scottish Executive.

Scottish Office Education Department (1991). *Curriculum and Assessment in Scotland National Guidelines: English Language 5-14*. Scottish Office Education Department.

Sengers, P. (2000). Narrative Agent Architecture. In *The Proceedings of the International Workshop on Narrative in Interactive Learning Environments*. Edinburgh, Scotland.

Sharples, M. (1998). *How We Write: Writing as Creative Design*. Routledge, London.

Smith, S. and Bates, J. (1989). Towards a Theory of Narrative for Interactive Fiction. CMU-CS-89-121 Carnegie Mellon University.

Smith, J. and Elley, W. (1998). *How Children Learn to Write*. Paul Chapman, Publishing Limited, London.

Sperling, M. (1996). Revisiting the Writing-Speaking Connection: Challenges for Research on Writing and Writing Instruction. *Review of Educational Research*, **66**(1), pages 53-86.

Stevens, J. (1996). *Applied Multivariate Statistics for the Social Sciences*. Lawrence Erlbaum Associates, New Jersey.

Stine, R. L. (1993). *Goosebumps – Books 1-4*. Scholastic Paperbacks.

Sweeney, T. (1998). *UnrealScript Language Reference* available at <http://www.unreal.com/support/index.html>

- Sykes, J. (2000). [A Learner Centred Interface for the Navigation of Complex Virtual Environments](#), *HCI 2000:volume II*.
- Szilas, N. (1999). Interactive drama on computer: beyond linear narrative. *Narrative Intelligence Symposium AAAI 1999*, Fall Symposium Series.
- Tolkien, J. R. R. (1954). *The Lord of the Rings*. Houghton Mifflin Co (reprint, 1991).
- Turkle, S. (1995). *Life on the Screen*. Phoenix.
- Umaschi, M. (1996). SAGE Storytellers: Learning about Identity, Language and Technology. In *Proceedings of ICLS '96* (Second International Conference of the Learning Sciences).
- Valasquez, J., and Maes, P., (1997). Cathexis: A Computational Model of Emotions. *Autonomous Agents 1997*, pp518-519.
- Van Ments, M (1994) *The Effective Use of Role Play: A Handbook for Teachers and Trainers* Kogan Page, London.
- Vygotsky, L. (1962). *Thought and Language*. MIT Press.
- Vygotsky, L. (1978). *Mind in Society*. MIT Press.
- Wavish, P. and Connah, D. (1997). Virtual actors that can perform scripts and improvise roles. *Online Proceedings of the ACM Autonomous Agents '97*.
- Weiss, M., and Hamilton, M. (1990). *Children Tell Stories: A Teaching Guide*. Richard C. Owen Publishers, Inc., New York.
- Wiemer-Hastings, P. and Graesser, A. (2000). Select-a-Kibitzer: A computer tool that gives meaningful feedback on student compositions. To appear in a special issue of Psotka, J., Editor, *Interactive Learning Environments*.
- Wilder, I. L. (1940). *The Long Winter*. Methuen (reprint, 1970).

Wilkinson, A. (1983). Assessing Language Development: The Crediton Project. In Freedman, A. Pringle, I. & Yaldon J., Editors, *Learning to Write: First Language/ Second Language*. Longman, Inc., New York.

Wilkinson, A. , Barnsley, G. , Hana, P., Swan, M. (1980). *Assessing Language Development* Oxford Univeristy Press, Oxford.

Williams, J. (1991). Stupid Marco. In Rosen. M. , Editor, *Funny Stories*. Kingfisher, London.

Williams, N. (1998). *Four Letters of Love* (Reprint Edition). Warner Books.

White, T. (1987). *The Once and Future King* (Reissue Edition). Ace Books.

Wing, Jan, L. (1991). *Write Ways: Modeling Writing Forms*. Oxford University Press, Australia.

Winston, J. (1998). *Drama, Narrative and Moral Education*. Falmer Press, London.

Wyse, D. (1998). *Primary Writing*. Open University Press, England.

Young, R. Michael, (1996). Computer Support for Collaborative Dramatic Art. In *Working Notes of the Workshop on Use and Design of MUDs for Serious Purposes*, 1996 Conference on Computer-Supported Co-Operative Work.

Young, R, M. (2000). Creating Interactive Narrative Structures: The Potential for AI Approaches. In *Artificial Intelligence and Interactive Entertainment: Papers from the AAAI Symposium 2000*.

Game References

Valve (1998). *Half-Life*. Sierra Studios. Information available at <http://sierrastudios.com/games/half-life/>.

Epic Games (1998). *Unreal*. GT Interactive. Information available at <http://www.unreal.com/>.

Ion Storm (2000). *Deus Ex*. Eidos Interactive. Information available at <http://www.deusex.com/>.

Raven Software (2000). *Star Trek Voyager: Elite Force*. Activision. Information available at <http://www.ravensoft.com/eliteforce/>.

Appeal (1998). *Outcast*. Infogrames. Information available at <http://www.outcast-game.com/>.

Rogue Entertainment (2000). *American McGee's Alice*. Electronic Arts. Information available at <http://www.alice.ea.com/main.html>.

Nihilistic Software (2000). *Vampire: The Masquerade*. Activision. Information available at <http://www.activision.com/games/vampire/>.

Core Design (1996). *Tomb Raider*. Eidos Interactive. Information available at <http://www.eidosinteractive.com/>.

Naughty Dog (1998). *Crash Bandicoot: Warped!* Universal Interactive Studios. Information available at <http://www.naughtydog.com/crash/>.

1 Transcript of voice recordings

bessieisyourgra : So, Bessie is your grandmother? Hmmmmm.

didyoutellme : Or did you already tell me about that?

rememberingbessie : Oh yes, Bessie! Oh Doggie, you would remember her. She was always feeding you cookies. Hmm. She wrote me about her granddchildren once. Two of them. A boy and a girl. Well, since you are the girl, what happened to your brother?

remindmeofbessie : By the way, you remind me of someone. Yes. Hmm. Bessie. That was her name. She must be old now.

whatsgrannyname : Your granny sent you?? Hmm. What's her name?

cantexpectusbel : You don't expect us to believe that do you?

heyyou : Hey you, yes you! Come here! I want to talk to you.

neverheardofyou : Never heard of you.

nonsense : That's nonsense

realstory : Now tell me your real story

runaway : Ok, run away! I'm sure we're going to meet up again soon. Hehehe.

suchnonense : That's such nonsense

tellmewhoyouare : Now tell me who you are

tellmewhyhere : Tell me why you're here

whosentyou : I'm Fred. Who sent you?

youidcomeback : See. You did come back. Just as we told you. Didn't we, Doggy?

cookies : Come on, Doggy! You come too. She might have some cookies for you.

couldn't have done it : It was so good of you to drop by today. I couldn't have fought the evil without your help.

gosegran : I suggest we go and see your grandmother. Hmm, yes. That sounds like a good idea.

safe : Thank goodness you're safe. I'm so glad to see you.

thisisbrother : So. This must be your brother. Pleased to meet you.

evilclosingin2 : You see, I cast these spells to protect the castle from the evil that is closing in on us.

evilsorceress : I'm here to keep the evil sorceress from going to the castle temple. The problem is, she can change herself into anything she wants.

redospells : So, you must have come over the drawbridge. Oh dear oh dear oh dear. Doggy, you know what that means don't you? We have to do the spells all over again.
<Sigh>

uptoyou : You don't have to believe me. It's up to you.

comebackwhenbro : Now go and hurry! And please do come back when you've found your brother.

hurry : we must hurry!

lookforbrother : So I think you should go and look for your brother. He may be in danger.

takecarefruit : Well, it's time to go now my dear. Oh but wait! You're bleeding. We have to take care of that first. Hmm. What would you say, Doggy? Oh, yes of course. Eat some of this fruit. That will take care of it.

takethedug : OOh. I'm sorry about that. What's up, Doggy? Oh. Yes. Hmm, I quite like that idea. You see, my Doggy, he knows good from evil. He wants to come with you. And I don't want you to go alone.

timerunningout : Time is running out you know.

behavedoggy : Now, Doggy, behave yourself. Enough of this.

dearieme : Oh. Dear oh dear oh dear oh dear oh me.

didntforgetaboutevil. Now , Doggy, back off. I did not forget about the Evil One.
How could I?

hearingvoices : Hmm. Strange. I keep on hearing voices. HmMMM. Strange indeed.

howcouldiforget : Oh silly me! How could I forget? HmMMM.

makesyouwonder : Makes you wonder. Doesn't it?

mumblings : hmm. hmm, yes. I think that will do. Hmm Hmm. Come to think of it.
HmMMM. Hmm. yes, Oh yes, hmm. That's funny, hmm, yip.

naptired : You know what, Doggy? I'm tired. I think I'm going to go for a nap.
<Snore>

pattingdog : Yaa ya ya ya ya. There's a good doggy. ya ya ya ya ya.

ramblingtodog1 : Oh yes yes yes, I know, Doggy. But please try to forget about the
evil for a moment would you?

tellmeagain : Please, tell me again.

wonderupto : I wonder what's she's up to.

wontanswer : I don't think we're going to answer that. What do you think, Doggy?
HmMMM. So do I.

yawnscoughs : <yawn> <cough> Oh. Hmm. Sorry about that!

yesyeshmMMM : Oh yes yes yes yes hMMMM.

youtireme : All thse questions. You tire me.

beenwaitingfor1 : The moment I've been waiting for...

boat : This boat will take you to your sister

canwebefriends : Can we be friends?

carefulstairs1 : Be careful on the stairs

couldntbeatmewav : I knew I could do it.... We could do it.

droppedbook : Oops. You dropped me. Just pick me up and dust me off.

droppedbooknasty1 : Oh. You dropped me. Well, what are you waiting for? Pick me up, let's keep going

droppedbooknice1 : Oh. You dropped me. Never mind, just pick me up and dust me off. Let's keep going.

emeraldring1 : Ah. How beautiful the water looks. It reminds me of a ring I once had. A beautiful shimmering, emerald ring.

fencearchway : Take the archway closest to the fence.

fish : Ah. I remember. There used to be so many fish. All the different colours of the rainbow.

freshair : Mmmmm. The air smells so fresh. I thought I was going to be trapped in that room forever.

fruitsmell : Go through the tunnel where the fruit is. MMm. Doesn't it smell appetising?

goon1 : No, we can't get through that way. You'll have to do it!

granny1 : Don't worry dear. I'll look after you.

grannybetter2 : That's better isn't it?

intro3 : Excuse me, Hello! Oh I'm sorry, I'm here on the table. The book with the red and gold cover. Would.. would you be willing to pick me up?

itsthem2 : It's them! They put the spell on me! That's why I'm in this book.

jumpdown : I need you to be very brave and jump down. Will you do it?

jumpout2 : We're nearly there! Get ready to jump out.

leaveittomegra : Just leave it to me.

lookdownscared : Look! Look down below.

monk : Go through the archway past Horatio. Yes! The statue. Not looking too good is he?

moretrappedinbook : Well there was this awful creature called Fred. He ordered me to be put into this book a long ago. I think he wanted all the power for himself. He wanted to rule the castle.

notgetintheway : Well, we can't let them get in our way.

notmuchtime : We don't have much time. They'll see us soon. Come on!

Now : Now!

openair : Ah it's good to be in the open air again. It's more glorious than I remember. Have you ever seen a sky like that?

setofftogether2 : Right. Let's go!

shivers1 : Doesn't this place give you the shivers? Come on, hurry!

sign : What does that sign say up on the right? Well, come on! Honestly! What do they teach children in schools these days? Anyway, turn right!

sisterhere : Oh, your sister will be here.

slowdownnasty : Slow down!

slowdownnice : Slow down.

spiders : ooh! Dusty, dusty! Cobwebs, spiders! Ooh!

Take theorb1 : Do you see this orb? Now, take it. It's the only way to get rid of them.

tapestry : Go through the archway with the tapestry. My, the old thing is looking faded.

temple1 : We're here. The temple!

throughdoorwav1 : Now, through this door.

throwit3 : Throw it!

trappedinbook : Oh, thank you. I've been trapped in this book for ... well, too long. But let's not talk about that.

triumph : Haaa! We've done it!

turnaround : Turn around.

upstairs : Go upstairs.

waitmedium1 : Wait a moment. Be still, won't you? I'm trying to think.

waitnasty : Oh, wait a moment! Be still, can't you? I'm trying to think!

waitnice : Wait a moment. Please, will you? I need to think.

wellgetin : Well get in!

whatswronggranny : What's wrong dear?

worryfall : Don't worry if you fall off. Just try again.

youllhelp : I know how to get rid of these monsters. You'll help me, won't you?

onyourheadbeit : Fine. Be like that. You've obviously made your decision. But let me tell you. You won't get very far on your own. It's dog eats dog out there. It won't be long before you come crawling back to me.

Alone : Alone. I've been so alone. There's always been something missing. I struggled for so long. But I never found it.

believememother : Surely you don't believe what she's telling you. We're friends now. You're with me. Trust me.

betrayalpanic : No. You can't leave. I was helping you. You're betraying me. You're betraying me and I'm helpless. Please don't do this.

beware : Beware. Cross me and you will pay. Here me, you will pay. Do what I tell you and everything will be fine.

comebackpanic : No, no, don't walk away. I need you. Do you hear me, I need you! Please come back, we were doing so well.

daniel2 : Daniel! Oh Daniel! <laughs>

danielflirt : Daniel, oh Daniel <laughs>

daretodefy : You dare to defy me? Have you no regard for your own scrawny little skin? I am the Lady Searle, sorceress and mage. Soon I will control the castle and beyond. Then you will pay for what you've done.

differentnasty : Things could have been different.. If you'd helped, everything would have worked.

differentnice : Things could have been different.

encourage : That's it!

endinglikethis : But... But, I never imagined it ending like this.

girldream : I've always been alone. I've always had to fight for what I wanted. And I've fought well. Some you win. Some you lose. But a girl's gotta have her dreams.

gonewrongtetchy : No. we've gone wrong somewhere. You have to listen to me. Try again!

goodleft : Good, now left.

goodright : Good, now right.

greenbottles : <sung> There were 10 green bottles hanging on the wall. Ten green bottles hanging on the wall. And if one green bottle should accidently fall.... There's be nine green botles hanging on the wall. <fade out>

hellslide : <sung> To little brother woe betide. Down into hell he'll slowly slide.

hurtsister : You love your sister, I know. You wouldn't want her to get hurt now, would you? So if I were you, I'd think very carefully about your next move.

idioticsister : Well my child. you have made the right choice it seems. You stood by me in spite of what your idiotic sister has been telling you. Now I must tell you. I am more than I seem. I am the LAdy Searle, sorceress and mage. Soon I will control the castle and beyond. I will repay you for what you have done. You will survive, for a while. Your sister and that awful creature will have to go.

keepgoing : Now, let's keep going.

laugh1 : <cackle>

laugh2 : <cackle>

mercysarky : You wouldn't let me die would you? Not after all we've been through. Please, you've got to help me. I thought we were companions. We're supposed to trust one another. Doesn't that mean anything to you? Do you want my death on your conscience? Please. Just let me go. I see how wrong I was and I'll never make that mistake again. But it lies in your hands now. I can only prove it to you if you let me go. Give me another chance. Just one more chance.

mercysincere : You wouldn't let me die would you? Not after all we've been through. Please, you've got to help me. I thought we were companions. We're supposed to trust one another. Doesn't that mean anything to you? Do you want my death on your conscience? Please. Just let me go. I see how wrong I was and I'll never make that mistake again. But it lies in your hands now. I can only prove it to you if you let me go. Give me another chance. Just one more chance.

micesing : Three blind mice. Three blind mice. See how they run. See how they run.

micesing2 : They all ran after the farmer's wife who cut off their tails with a carving knife. <pause> Hmmm Did ever you see such a thing in your life as three blind mice.

outshrimpbrothe : I warned you that your brother might suffer. Out of my way, you little shrimp!

petulant : Look, don't go. Please! You're not listening to me. I thought we were friends.

praise : That's it! You've done it! I knew we'd work well together.

quick : We have to hurry!

reasonable : Now, look. We've been through too much for you to back out now. We're partners, in this together, And face it, you need me as much as I need you.

redeemsarkey : It's all gone so wrong. Maybe I've acted badly. What was I trying to do? But don't think too badly of me. I was weak. I was driven by a desire for power. But you've made me see the error in that. I'll go now. There won't be any trouble. You won't see me again. I'm going to get as far away from this place as possible.

redeemsincere : It's all gone so wrong. Maybe I've acted badly. What was I trying to do? But don't think too badly of me. I was weak. I was driven by a desire for power. But you've made me see the error in that. I'll go now. There won't be any trouble. You won't see me again. I'm going to get as far away from this place as possible.

regretsincere : We could have made a good team. But I see you've made up your mind.

regretsnidey : We could have made a good team. But I see you've made up your mind.

repaynasty : I've done so much for you! Is this how you repay me?

roses : Ring a ring a roses, a pocket full of posies. Atischoo! Atischoo! We all fall down. <laughs>

sarkey : You haven't guessed have you? All along you thought I was some good soul just there to be your personal guide. Just what do you think I am ? Your slave?

seewhatyoudid : You see what you've done? Look at me. Look at me now. See what I'm reduced to. How could you have done this to me? It was all going to be mine. All of it. I was going to rule everything and I would have given you so much. I would have thanked you for what you had done. You would have benefited from my rule. But no. It's all lost now. Never will I taste that power.

suffersister : I warned you that your sister might suffer. I suggest that you get out of my way.

thank : Thank you. You won't regret your decision. I'll honour it till the end.

thatkindofagame : So you want to play that kind of a game. You wouldn't woud you? Not after all we've been through together.

tryleft : Try going left here.

tryright : Try going right here.

unrepentant : Well, it's hardly turned out as I'd planned. And whose fault is that? If you hadn't got in the way, who knows what power would have lain in my grasp. It's all your fault! And am I sorry? Could a little shrimp like you make me feel sorry? Who do you think you are? I don't feel guilty for a thing. Not a thing. I'm happy knowing I've tried to get what I want most.

whatdonenasty : Oh what have I done?

whatdonenice : Oh what have I done?

wherearewe : Now let me see. Where are we?

whisper1 : Daniel. I can see you. Can you see me?

wrongturn : No, we must have taken a wrong turn somewhere.

younedtohelp me : You see, it's perfectly simple. When I said at the beginning that I would help you, the fact that you would help me was part of the bargain. It's as easy as pie.

checkingok6 : Hello dear. It's Granny Bessie. Just making sure you're all right.

startle1 : Did I startle you? It's only your old gran.

thatwoman : Oh, I don't know if I like that woman .. Do you trust her?

righting3 : Oh dear. Daniel, I'm not sure that was the right thing to do.

bluething4 : Jenny, I would pick that blue thing up. I think you'll find it useful later, dear. It will kill the evil sorceress sure enough but you'll need to trap her first.

purpleforcefiel : Oh, wonderful! Do you see that purple forcefield? On the ground.. If you keep that safe, you can trap Lady Searle with it.

trapher2 : Come on children, you'll need to use the purple forcefield to trap her. Which of you has it?

cankillher3 : Now you have to decide. You can kill her with the blue orb. But do you really want to do that?

proud : Oh well done! I'm so proud of you!

comehome : Now why don't all three of you come home and see me?

2 Stories

2.1 A Visit to a Ruined Castle

One day me, Steven and Stewart all went to the castle at nine pm, then we me Robert, afterwards we phoned Richard so we waited for him outside the castle. Richard didn't turn up and time was passing quickly and before we knew it, it was half past ten. And as we waited we heard scary noises. We thought it was Richard but it wasn't. It was a weird looking man. He walked past us. So we phoned Richard to see where he was. We heard his mobile ringing from under the bridge. I found it lying in the grass with blood on it and then suddenly we heard him shrieking for HELP! And then Robert just vanished, there was only me, Steven and Stewart left.

As we wearily walked we jumped as we met Catherine and James. We heard banging noises coming from the castle. Just then we found Richard lying in a pool of blood, half dead. We took him to somewhere safe and went in search of Robert who we found up a tree with a knife slash across his face. Stewart felt so sick with all this that he ran home crying for his mum but he didn't last long as he ran out onto the busy road and got knocked down by a massive lorry and dies. Me, Steven and Robert left Catherine and James then set off looking for the man.

We found James hung from a tree insides out, so we picked up the axe used for killing James. We seen the man trying to kill Catherine when we hit him and knocked him out for the police to see.

2.2 A Visit to a Ruined Castle

One Friday afternoon, Stacy, Jackie, Iain, Dayle, Lee and I all met in Lady Nairn Avenue.

I asked them if they wanted to go to the ruined castle. They said yes. 5 minutes later we were there. Suddenly there was a flash of lightning and a clap of thunder. Then the rain started falling, so we covered our heads and ran in through the castle door. Then it banged shut behind us. Stacy said it was just the wind. Iain said "I'm scared!" Iain, Stacy and Stephanie said that they heard chains rattling. Jackie and Lee said "Look, a whole room of killing devices for killing people with". Stacy said "Come on, let's get

out of here. I'm scared too!" We all ran away, apart from Lee who wanted to have a look round.

Then we heard Lee shouting "I want to go home", but the door was jammed shut. Suddenly King Arthur appeared and grabbed him. Lee was speechless. He tied Lee up and put a rope round his neck and pulled it tight. He was dead. Jackie was in a room alone when she saw a picture of Lee. Jackie screamed and punched the air. King Arthur jumped off the roof and stabbed Jackie in the head with a rusty dagger. The dagger went from one side of her head through to the other side of her head. The next morning everybody was tired but the doors were still locked. Stacy said "Look, there's Iain with nails stuck in his face but he's still alive." (as soon as Stacy said "alive" he fell flat on his face.) I said "Nope. He's dead!". The only people left in the castle then were Dayle, Stacy, Stephanie and me. We saw King Arthur looking at a picture. it was of his wife. I went forward to have a closer look, but the door creaked. King Arthur noticed me then I shouted "Time to go". The gang started to run as fast as they could. I told the others to split up. Stacy followed me when we separated and we ended up back in the weapons room. I saw King Arthur again so I grabbed a rifle. There was a loud bang. The bullet had gone straight through Stacy and there was blood everywhere. then I was on my knees. Again there was a bang. I was dead.

Dayle and Stephanie were the only ones left. They ran to the weapon room and saw me and Stacy on the floor dead. They saw King Arthur. He was crying. Then he ran after them and caught Stephanie. He took her to the wood and sliced her head off with his sword. Dayle was running all over the shop. He finally escaped but King Arthur shot a cannon ball at him. Suddenly the castle disappeared!

Craig! Craig! Wake up, time for school!

2.3 A Visit to a Ruined Castle

On the 15th May, 2000, Matt and Jeff Smith went down to Ravenscraig Castle with their replica magnum cap guns , a biscuit each and ten caps each. The journey started at 4 Harriet Street, and our two heroes are just setting off on a journey of a lifetime!

When they got to the castle, they heard a rustling sound coming from under the bridge that was in front of them. They quickly ran forward and looked through the gaps in the bridge and saw a strange man walking past.

Jeff and Matt quickly jumped over the side of the bridge and glided down the support beams. Jeff landed on his feet, but Matt slipped at the bridge and landed with a thud on the strange looking man. When Matt got up, he noticed that the strange looking man's head had fallen off!

After the man got up, he muttered something about Matt's carelessness. When Matt asked the man about his head falling off, the man explained that he was a ghost, Headless Nick, to be precise, of the castle. When Jeff went to shoot his cap gun he got a fright because it fired a real bullet!

When the bullet hit the side of the castle, Nick started to run back up to the bridge. Jeff and Matt quickly climbed back up the support beams. They ran after Nick who had ran through the door of the castle and disappeared out of sight!

Jeff and Matt quickly ran into a dark room where a large boulder stood. Suddenly the floor began to creak open and a large booming voice came from under our heroes, and a blinding red light stunned our heroes, then, suddenly, the devil appeared to rise up in front but an optical illusion tricked our heroes into thinking he was behind them. Matt quickly went to shoot the devil, but he thrust his tail near our heroes hands and sent their guns out of the tall skinny window. When the devil went to throw a fireball at them our heroes began to run.

They ran through the door and started climbing up the side of the castle onto the roof. When they started to run over the hard, rocky, stone roof, they noticed that the devil had swooped up behind them. The devil threw another fireball just as Jeff and Matt were at the edge of the castle. Just as the fireball hit the stone roof, Jeff and Matt leapt into the air.

Woooooaaaaah. They landed on the bridge and it started to crack in the middle!

The devil appeared behind them and Jeff quickly took a running tackle at the devil and the devil was knocked through the hole in the middle of the bridge. As Jeff fell

with the devil, a large, black vortex (or black hole) appeared beneath Jeff and the devil. Jeff quickly clinged onto the sides of the wet, slippery and muddy vortex and the devil was sucked into the vortex, leaving Jeff hanging on to the side of the deep and unknown vortex. His shoe slowly starts to slip from his foot and as Jeff notices he shrieks in horror to his brother to save him, and as Matt reaches out for his brother's hand "Shllrrrouup". The vortex vanishes beneath Jeff's feet, leaving him to fall to the ground.

When Jeff got up, he noticed that the sky had went grey and cloudy. And what's more, he couldn't see Matt. When he went to turn around he heard a whizzing noise coming from behind him. He quickly turned around and saw Nick point a gun at Jeff's head!

Meanwhile, on the bridge, Matt is shouting to his brother but gets no reply. When Matt goes to slide down the hole in the bridge, he hears a "clunk" at his feet. He looks down and sees his gun, puts his brother's in his pocket and slides down the hole!

He quickly jumped down the hole, with the gun in his hand. When he got to the bottom of the hole, he saw Nick pointing a gun at his brother and decides to load his gun.

"Click" the small cartridge was slotted into the gun. Nick turned around. Matt threw his brother's gun at Nick and it knocked Nick unconscious. When Nick got up, he pulled a small blade from his pocket and cut a rope that was next to Jeff. Jeff heard a whizzing sound and part of the bridge landed on top of him!

Thus! Bang! Matt shot Nick but he dodged the bullet and ran away. Matt heard a moan behind him and saw Jeff climbing from the rubble. When Jeff saw Matt he shouted "Tiger!!!" Matt turned quickly and saw a large tiger about 10 metres away from him. Matt and Jeff through their biscuits at the tiger.

After the tiger had gone, our heroes decided to take a nap under a tree.

When they awoke, our heroes found themselves on the roof of the castle. Matt woke up and stretched. Jeff said to Matt that he had a weird dream about the devil trying to kill him and Matt said he had the same dream as his bro. Matt said that if it was a

dream, he would still have his biscuit in his pocket. Matt and Jeff went to have their biscuits, when Matt noticed that his pocket was empty, he heard a cry behind him. It was Jeff! He didn't have his biscuit either!

Now whether the story is true or false is for you to decide, but our heroes are left puzzled!!!

2.4 A Visit to a Ruined Castle

“Come on everybody” the teacher scowled with her nose buried in the register, “Now's not the time for silly games and chattering of children's voices. You know very well today is a visit to the medieval Haunting Tower Castle So I must take the register. Hi, my name is Jack, my friends call me Jake. I'm bored stiff after all the castles I've visited this boring old year and for once in my life I'm looking forward to this one. My crazy friend Gary said the last time he went there, there was an old skeleton lounged over the rusty bars in the dungeons and everybody got to feel his scaly old bones. Oh, that gave me the shrieks! I could just picture his hideous and decayed face staring back at you with a cheesy grin sprung on its mouth and his feet broken at the tip... “Get moving!” the teacher barked, breaking me out of my day dreaming.

I stepped up onto the bus and hurried to get the seat at the window. I was sitting next to my best friend Gerard Jonson. “To tell you the truth”, he said “Some people say it's haunted”. The hairs on the back of his neck stood as straight as a ruler. “Don't be silly” I said sarcastically. Who every to you that is worse than Ian the Geeks master. I protested as his fear faded away.

Ssssss. The bus squealed to a stop. I jerked forward a little as I was surprised. The bus had finally stopped. “Single file!” the teacher said with her left foot on the second step. I raced to the front and followed on behind the teacher. Her big high heels clumped down the plastic steps. I took two steps at a time as I was so urgent to see the castle. It was not what I expected. its appearance gave me the goose-bumps and half the wall was broken away. There was moss climbing all the way up the spiral tower and a pigeon took off from the hole in the roof. I looked deep into the dark room of the mysterious castle. Something shimmered in the darkness. I blinked a couple of

times. It must have been my imagination, I thought. After all, I have had a long, log bus ride.

“Ahi ahi ahem” The teacher cleared her throat. “You can go anywhere in the castle, but meet back here at one pm.” The teacher gave me a dirty look. I looked at my watch. It gave me an hour to explore the castle’s wonders. “Be your partner” Gerard jogged towards me. “Alright” I agreed. “Thanks” he said breathing hard as he ran out of breath. “Right, let’s go to the dungeons”. “No!” Gerard chimed in as he took a step back. “Well, if you don’t you’re a pussy!” I exclaimed. It didn’t take him on eight of a second to decide where to go. “I always knew you were a man”. “Yeah, right” I muttered to myself. I looked down at the castle map that was spread across the stony wall. I skimmed my finger down the bottom. “Ah there it is. Just down some crumbled old stairs and a few corridors.” We clumped down the old stairs with Gerard clattering behind. “Hurry up!” I shouted. My voice echoed through the long corridor. I jumped the last stair and reached my hands out for safety as I grabbed hold of a ledge. “I’m not saying this again – hurry up! Martha Stewarts faster than you!” “Coming” he fell down all the stairs. Hi feet kicked in the air like a bug on it’s back and knocked It was like a Canadian car crash at the bottom of the stairs. “Get off me, you big galloot!” I shouted my voice was like thunder in the hallway. “By the way, who’s Martha Stewart?” he said, grinning and his skin went palish. “Never mind” I hoisted him off me and brushed all the mud and rubble off my T-shirt. “I told you it was a bad idea to come to the stupid old dungeon” Gerard complained. “Just shut your big fat face for once” I cried. I ran across the corridor, looked left, looked right then seen the dungeon on the left hand side, just stuck in among the store rooms. Some skeleton! I squinted through the bars and saw a rat run back in its nest and a leak of water dripped down from the roof and an old bench toppled over. “So I came to this trip just to look at an old dungeon with no skeleton in it. I was going to bring the camera”. “Wouldn’t be a good idea” Gerard finally said with a bit of common sense. *Beep beep*. “Fiddle sticks, that’s 1pm” I announced but this time did not take the stairs. “Oh why did I not come this way rather than take to stupid old stairs. I suppose it was a bit of an adventure.” I thought as I rapidly sprinted up the corridor and darted up the big slope and came to a dead end. “This cannot be happening! Why me?” I seen the light filter. “Ah, there must be an opening somewhere!” I scampered up another slope and came to a gate. My heart started to flow again as I seen the bus. “All I have to do now is

push this gate and I'm out of here." I pushed. it wouldn't budge. I shook the fence like a rag doll. *Broom broom*. The bus started going without me. Just me left. In this deserted castle myself. My shadow spilled out onto the wall I was leaning on and all I could hear was the ticking of my watch and a strange buzzing sound drowned out my watch. I gasped in horror as my blood froze. It was like someone singing. the noise was getting lower which meant that whoever it was was getting closer. I tiptoed closer down the slope and looked around. Something grabbed hold of my shoulder! "Aaaaaaaa!" I screamed. My heart pounded harder than my trainers on the stone floor. I felt a cold shiver run down my spine. I took a deep breath then held it. "After 3 I'll turn around". 1..., 2..., 3! It was just Gerard. "You scared the living daylight out of me" "Ha ha. Just fooling around" he sneered, "oh, Jack. I've got yer hat. Yeh left it in the dungeons .Oh, one more thing – did you check out the skeleton? That was a classic!" "Ah you're off your rocker". I scratched my head in puzzlement. "no, really. It was there." "Prove it" I said, folding my arms. "Come on then" he said, already ahead. We got to the dungeons. "Eh? Where is he?" Gerard said frantically. "Calm down". I could see his worried expression as he chewed his lower lip. With both of us arguing, the dungeon door flew open with a creak. "Something odd about this castle. I can't quite put my finger on it.." "Let's go and get the skeleton!" Gerard's eyes lit up with excitement. "Skeletons don't just get up – *or do they?*" "Well, I'm not standing here like an idiot, I'm going to take a look in the caller room." I bolted round the corridor. I heard Gerard talk to himself. I couldn't believe what I just heard! So he's behind all of this. It was him that locked the gate when I was going to leave just so he could scare me and he controls the skeleton. I followed him to a room that was hidden behind a book shelf. Of course, it was the control room. "Caught you red handed!" "Spoil sport! What are you doing spying on me?" "Just what are you doing trying to scare me?" "Just fooling around!" he burst into laughter. "How did you find this control room? OK, I confess. My dad owns the place and he gives me the keys." "What's the story about the skeleton?" "Oh that. My dad's kind of a joke at Hallowe'en." Well, the story ends in a joyful way because Gerard and Jack would go down and scare all the tourists. So I hope you've enjoyed the story and have a scary night.

The End

2.5 A Visit to a Ruined Castle

It's a fine, cloudless, bright, sunny day and as I take a breath, I can feel the morning breeze shoot swiftly up my nostrils. I'm just sitting here day dreaming when mum shrieks upstairs "School Time!". Suddenly I'm startled as the racket catches my ear. I grumbled downstairs in a gruff voice "I'm coming, I'm coming". After about ten minutes of moaning I finally agree to go to school – (Though I wish I hadn't), "Time for your daily shower!" She shrieked again. I gloomily walk towards the shower hoping mum would say "Don't worry, I'm sure you can have a shower tonight. " but she didn't. I disobediently turn on the shower and don't go in. Since I'm hiding myself to keep clear of the shower I may as well introduce myself. My name is Bryan – my friends call me Brazz, I'm nine years of age and have no interest in school. I have no brothers and no sisters so I get all the attention.

As I Walk to school, like every morning I sing to myself "No school today – doo dah doo dah" but of course it never works. Only 100 yards from school I say it to myself as I sign my "doo dah" song faster, but yip! You guessed it! School was on. After six hours of surprisingly interesting work I set off for home singing my going home song "School is over today doo dah doo dah".

"Home once and for all!" I scream as I kick open the front door, and then, making me jump, was the phone ringing. "I got it" I shriek as I make a grab for the phone. "Coming out?" asked my Stubby (or should I say my only friend Philip). "Where to?" I declared in an interested but mischievous voice. "The castle" he said spookily. "That old, rotten, dirty heap of trash?" I said disgustedly. "You heard me, the castle!" "You know it is haunted by the phantom of the most crooked, dark, gloomily and dirty of castles" "Yeah, right" I horridly snapped back. "Well, why don't you find out for yourself, or are you scared?" he said mystically. "Of course not" I say as I screw up my face and tighten my knuckles. "Meet me there at five" he said as he slammed down the phone.

Great darkness enters my soul as I shuffle towards the crooked half building that was once a castle. *Creeeeekk*. A weird creaking noise alerts as I swing open the mental door and to my surprise, out jumps a body from the dark crooked dungeon! Suddenly my heart beats faster (one thing I'm certain of, it's not my shadow). It's a dark figure, a

little but not a lot bigger than me. I'm not scared as I know it's just some kid playing a prank on me. So I walk smoothly but swiftly towards it, and to my shock, dangling like a rag doll in his arms is Philip! "Help" he gasped, "Please!" he shrieked again as the figure disappears. I began to get more worried than ever.

After hours of running and scrambling about like rats I finally catch ... a policeman – who's taking Philip home for scaring the eleven day lights out of him with a dummy he calls – *The scariest of the scariest of castles*. So after this misunderstanding I now set off to my bed with my new dummy – the scariest of the scariest of castles.

2.6 A Visit to A Ruined Castle

It was Thursday afternoon at school and our teacher, Miss Horn was telling us about a trip we were going on. It was to a ruined castle. We were all very excited. She said "it will cost you £1 and you will get a letter tonight." I walked home with my friend Stephanie who was going. Later that night I went to bed thinking what it would be like. I was excited. It was morning. I hurried up, washed, brushed my teeth, got washed, got on my clothes. I picked up everything I needed and went to Stephanie's house. We stopped at the shop as we skipped off to school. As we got into school Miss Horn took out money and slips and we waited for the bus to come. We were on the bus and we were singing lots of different songs and Miss Horn shouted at us.

It took a long, long time to get there. Me and Stephanie were imagining if it would be fun. The rest, well, they didn't really care but I was very curious about it as I ate my last crisp.

We reached the castle and everyone got off the bus. They walked down the narrow lanes to get there. We walked along a foot bridge to get to the castle. Men were standing at the door with guns. They let us into the first door and another man unlocked another door. We were right in now. We went in one door and it had been a prison. We all looked around. There was a small toilet in it and a seat, even a small bed. We went out of that room and the man locked it up again. We went into another room. It was very, very dark. I got a shiver up my spine and we were hearing noises. We went into one of the planning rooms and a man jumped out! I went "Ahhhh". After that I was holding on to Stephanie. Alan was mucking about outside. He got

lost. He was trying to climb a wall to catch up with us and he fell and all you heard was CRASH! He banged into a big stone. One of the men took us outside onto the hill of the castle to see the man who built it. He seemed a little weird. We sat on the grass and he told us a story about the castle. He told us how he thought of the name. Mr Wright, the owner, had told us he had been accused of murder. We walked past a lane and Stephanie gave me a fright and my hair was sticking up like mad.

We went to the upper half of the castle where it was haunted. Adam ran away from us. He was in a room while we were in another. We walked through to the room Adam had been in but he wasn't there. He must of gone somewhere else. His cousin Sam said "Who cares about the fat thing?" and all the boys were laughing.

We walked into the final room and there was Adam hanging from the roof with Mr Wright. He said "Who want it now?". It was scary. We all ran for our lives. We tried to get out the exit. It was locked so we tried to get to the lower level but it was locked. He was coming down the stair with a knife wiping the blood off going "Ha! Ha! Ha!"

It was so scary we all took a big step back and we ran through a door. We all took a deep breath as we ran from him. We were at an exit. We all ran out the door and started to run up the lane. We all screamed "Ahhh!" Miss Horn grabbed the gun from one the men standing outside. I said to Stephanie "No wonder he was accused on murder" She said "Kids, follow me!" We all did and standing there was MR WRIGHT!

"Miss Horn, shoot him!" a boy said, so she did. "Now kids, run for your lives!" We got into the bus. Miss Horn was out of breath. The only problem was that the driver was missing and Miss Horn could not drive. We all started to worry. We ran around a corner and saw a strange thing. It was Adam. There had been another school there and they had a boy who looked like Adam. We spotted the bus driver. Miss Horn shouted "Hurry! Help us drive home now!" We all got on the bus, put our seatbelts and Mr Oxford the driver wondered what was wrong so we told him the whole story. On the way back we were singing and Miss Horn did not shout.

We were back at school and I walked back home with Stephanie as usual. I said to her that it was a scary trip. She said "It was a little scary" I was at my house now and

Stephanie was at hers. My mum said “How was the trip?” I said “Great”. I had my dibber and the next day I could not be bothered going to school.

The End

2.7 Adventure Castle

Daniel and Jenny listened to Granny’s message. Very unusual. She had told the, to go and atlend[?] the castle until the found Fred, Gran’s friend but we had to be careful. Well, I got in the castle and it was amazing, really scary and it was fantastic, there were monsters and a very nasty girl called Lady Searle. She was missing a screw. She was nutshooo. When we found Fred we noticed that he was a very very kind direkful and helpful man. Yes he was. Oh, I forgot to tell you that Lady Searle was going to feed Fred to the fishes. I was sending messages to Jenny. I was trying but it was not working. So I tried again and I said “Where are you? I have been looking for you. Fred is in trouble by that Witch Lady Searle, and she’s going to put him in beside the fishes and we’ll never see him again, so I’m at the lake, just around the corner. “ And we were worried about Grandma as well. So we went back an said “I found Fred, you’re friend and he’s Ok”. Thank you children for doing this for me and getting Fred for me. Now you may go and have fun and be safe now”. “I will, Grandma” Well, that’s the end of the adventure castle.

2.8 The Hunted Castle

One day me and my sister Jenny was playing outside and we came to this place and we went for a swim and there was a big shark and it bit Jenny so I pick up a seed and it grew into a fruit tree and I got a fruit for Jenny and she got better. [turn over]

[over the page] My Granny

Please go to the castle and get Fred because I am not allowed out of here the nurses would not even let me out for five minutes. I have been in this nursing home for six months. Please will you get Fred. Can I trust you. I know you would.

[original page]

So we went over the bridge and it started to shake so I jump over and Jenny fell and I lost her so I tried to contact her. I said "Are you alright?" She said "Yes, I am fine. You go ahead and I will catch up with you." So I walked across the book. It was red and it could speak. It said "There is an evil witch in the castle. Find your sister and get Fred and kill Lady Searle a sigd raaht [?], and I took ["her" scored out] the book with me then I said to Jenny "Are you still all right!" She said "Yes". So I went to get her. I said "Where are you?" "I am just past the bridge" and I went back and there she was. I said to her "Come on" and I kept on walking and I lost her and I went downstairs and kept on walking and I saw this monster so I went down and he went after me so I got his thing and threw it at him and this green stuff came out of his mouth and he died and I went up the stair and some of the stairs were broken and there was water at the bottom of the stairs. I contacted Jenny again. I said "How are you Jenny?" She said "I am fine, where are you?" "I said "I am at the top of the stairs with water in the middle" So I carried on walking and I came to this bridge. It had a blue thing on it so I got it and then I jumped down from the bridge and I started to walk and I went down the stairs and there was this shark hanging from the roof and I saw this boat and I tried to go in the boat but it went away without me. I saw the shark falling from the roof into the water so I went in the water. I swam to the other side and there was about three stairs and I went up them and there was a bridge with this little castle at the end. So I thought I should contact Jenny. I said "Jenny are you alright?" and there was no answer. I repeated it and she said " Yes, I am fine. Where are you because I saw Fred?" I said "I am at this bridge and underneath is water". She said "I am at water and I can see a bridge" I said "Well come on then" and there was a purple light thing like a crystal and I went around it and I nearly fell into the water so I went back over the bridge and Jenny was there. I said "everything all right?" She said "Yes, of course, how about you?" I said "Yes, I am fine".

So we were looking for Fred and I saw this woman that looked evil. Maybe it is Lady Sara. I went up and she said "Where is that sister of yours" I said "Never you mind". Jenny came and said "Who is this" and I said "I think it is Lady Sara" and Lady Sara said "Yes, you are correct. I am Lady Sara. How are you. I am going to take over all of this castle" and Jenny said "I think I have got something to kill her" so she threw it and it killed her and we saw Fred and he said "Did your Gran send you here?" I said

“Yes” but Jenny said “Are you alright?” Fred said “Yes, and I suppose you are too” to me and Jenny said “Yes” and we went off.

2.9 Saving Fred

Me and Daniel arrived at the castle. We had a little walk about and I got the scuba diving gear. Then I went in the water. Daniel went to one side and I went to the other. I didn't know that a shark was there. So I hurried out of the water. So I told Daniel that I got bit by a shark. So I used the seed that I picked up and it gave me more life when I walked over it. So I said to Daniel “I wonder what's up that bridge”.

Then Daniel said “Let's check it out” but then Granny gave us a message.

She said “Do you know where Fred is?”

We said “Yes”.

Granny said “They're not letting me out of the hospital”. So she said “Find him for me and get him to come to the hospital”.

So we said “Yes”.

I said to Daniel “Let's find Fred”.

He said “Yes, let's go!”.

I said “Let's go up that bridge then. He could be up there.” We walked up the bridge and when we got to the top I said to Daniel to keep to the right but when both of us went up there we got split up. I didn't know where Daniel was.

Then I seen a big green monster that looks like a snake. The monster attacked me. I just ran away from it.

When I went through the tunnel it was dark and scary. Finally I got through it. Then I seen this green thing. I thought it was another monster.

So I started to run but the thing shouted “Come here! Who are you?”

I said “I am Jenny”.

He said "You're Granny Bessie's grand-daughter" and I said "Yes, I am".

The Fred said "Where's your brother?"

I says "I don't know. I got split up with him at the bridge".

The green thing said "My name is Fred".

I said "Are you really?"

And he says "Yes"

And he said "I know where your brother is".

He said "Follow me and I'll take you to him".

I said "Let's go then".

He jumped up these stairs so I jumped up the stairs too. So we went down stairs. And it was getting even darker when we were going downstairs. Then I seen Daniel standing there.

Daniel said "Who is this?"

I said "Meet Fred".

Fred said "Did you see anything or hear anything strange?"

I said "No" but Daniel said "The book".

I said "What book?"

He said "It was telling me where to go" And he found some monsters. The book was telling him to run. When he was walking over the bridge the book was telling him to jump off the bridge and there were two monsters at the bottom. Daniel jumped off the bridge and the monsters were attacking him. The book was telling him to run. Daniel ran. Then he went straight along through a dark creepy tunnel. Then he was at the bottom of the stairs.

Fred was talking about a witch and I didn't understand one word he was saying. It was "sorceress".

Then Daniel said "Let's go and find the witch".

We started talking more. Something hit me in the back. I didn't know what it was. I don't think it hit Daniel but it hit Fred.

Then Fred said "Let's go and find the evil sorceress".

"What is the evil sorceress?" Fred said that she's a big tall witch with a cloak on.

"Follow me. I will lead you to her".

So Fred was taking us through a dark creepy tunnel. Daniel jumped in the boat that Fred had told him about. I tried to jump in the boat but it too off without me. I jumped in the water and I swam across. I found this blue thing. I thought it was the orb so I collected it.

"Daniel, I've found the blue orb".

The tall mean woman in the cloak of black and purple appeared from nowhere.

I said "Who's that, Daniel?" in shock.

Daniel said "I think it is the evil witch".

"Who is the evil witch?" I said.

Daniel said "Who Fred was talking about – the evil witch!"

Lady Searle said in a mean voice "You dare to defy me? Have you no regard for your own scrawny little skin? I am Lady Searle, sorceress and mage. Soon I will control the castle and beyond".

The witch was talking to me and Daniel. She was saying that Fred got eaten by the monsters and she had a little taste. She went "Yum yum".

Then we said "She's a liar!"

I said to Daniel “She’ll never get away with this”.

“I get away with everything!”

“Not this time!” and Daniel put the forcefield around her.

The witch was on her knees pleading. “Please, please don’t kill me and I’ll give you anything you want!”

Daniel said “Kill her!”

Lady Searle said “Please don’t kill me!”

“Rot in hell!” and then I killed her.

She said “You’ll not get away with this.” She collapsed.

Daniel and I ran down the tunnel where we met Fred again.

Fred asked “Did you kill the witch?”

“Yes!”

Fred said “Were you afraid?”

We said “No.”

Fred said “Let’s go and see Granny.”

“Let’s go!”.

2.10 A Night in Creepy Kirk Castle

“Gran Bessy, why are we here again?” asked Jenny, a small self-obsessed sixteen year old, “I gotta go downtown to get his totally cool makeup. It’s got an eyeshadow and a lipstick”. “And a nail varnish. We know, we know!” said her seventeen year old big, blond and stronger brother., “Just shush and listen to Gran!”

“Now dears, I want you to find my old friend who lives in Old Kirk Castle, Fred. Can you do that for me? Thank you!” “But..” started Jenny. “Yes, Granny, Jenny and I will gladly help/2 said Daniel.

“I can’t believe you dragged me down here!” exclaimed Jenny for they were now in the ruins of an old building. “I’m going for a swim to cool down” said Daniel to which Jenny replied “Well I’m going behind this big rock to put on more makeup!”. As they went, Daniel in the water, and Jenny behind the rock when suddenly a big, ugly, red, monster with red eyes, with red scaly snakeskin and black spikes and a firebreathing mouth with 20 eyes and 21 noses leapt out and grabbed poor Jenny who was calling “Daniel! HELP!!!” But Daniel was trying to get rid of a mutated shark. He called “Jenny! Read it your makeup booklet!”. So Jenny started to read and the shark and the monster got fed up and went away. “Now”, said Daniel, “let’s go exploring.”.

As they went up the drawbridge it started to creak, creak creak. “I think this bridge is about to snap!” whispered Jenny. “Shh”, replied her brother, “We’re almost there!”. Suddenly SNAP! They were about to fall to their death but they quickly scrambled up to the door. “Phew!” said Daniel., “That was close. Eh, Jenny?”. Silence. “Jenny?” but Jenny had disappeared. “Over here, on the table!” “Eh?” said Daniel, startled. He didn’t want to go and see the person or thing but he seemed to be in a hypnotic trance. He went over and found a red... talking.. BOOK! “Come on. I’ll help you”. Meanwhile Jenny had also found the talking red book and is exploring the castle. “Where are we?” asked Daniel. “Go to the boat in the water”. “What boat?” Daniel said, “There’s nothing there!” and there wasn’t anything there. He jumped into the water and swam across to the other side. He went up the old, crumbling staircase and arrives at a well. “Go to the passage nearest the fence (around the well) and go through.”. Obediently, Daniel did and started to walk along a path. “Look down there!” .”YUK! WHAT ARE THEY?” Daniel shouted. For now he saw green worm/slug creatures.” “They are the ones who put a spell on me!” Daniel jumped down, went about 3 metres away from a green worm/slug thing the he brought out a red cross and threw it at the creatures. It fizzled then died. And then he went through another passage and found a special purple liquid. Then “Daniel, is that you?”

“JENNY! AT LAST. Where have you been? I’ve been looking for you!”

“So have I!” Jenny replied.

“Daniel, Daniel!”

“Who’s that?”

“I know you, Daniel, don’t you know me?”

“That’s the witch” Jenny said.

“What witch? Why didn’t you tell me, Jenny?”

“I saw Fred at the start and he told me about the witch. I tried to find you and tell you but you had gone.”

“Don’t you know me from the book?” said a tall, black haired, creepy lady wearing a chinese dress. “The book person?” asked Daniel. “Yes, sorceress, if you please. My name is Lady Searle. Will you help me rule the Kirk Castle?”

“No!” shouted Daniel and Jenny.

“Jenny, I’ve got the purple liquid. Should I use it to trap her?”

“Yes!” said Jenny enthusiastically so Daniel threw the purple thing and she was trapped. “Daniel, I’m going to use the cross to kill her!” He threw it at the witch. She collapsed and died then a green goblin (Fred) appeared and said “You have killed the witch. I think we should go and see your granny, yes, let’s go!” and that’s where the story ... ENDS

2.11 The Mystery of Kirk Hall

So grandma sent us to this dump and “ooh go an find my old friend Fred” and Jenny agrees to the mission so here we are. “Like, cool! A castle. Let’s go in, Jenny and move or I’ll be forced to move you.” So we trudged up the dreary sand stone bridge with water all around it then crash, bang wallop! I fell in and I was on my own. I saw a book hovering in mid air . “Oh great. Now I’m seeing things!” Meanwhile: “Oh, like great. My brothers wandered off, but at least I’m in the castle.” I looked around. There were loads of bunks and ladders to the top ones. Red scabby ladders that needed paint desperately. So I took the book and went through the woodworm filled door, past a tapestry that badly needed a wash on to beam “I shall give you an orb”, “and be brave and jump down from this beam.” But below there was a huge monster. Its big clamping jaws snapped at me. I jumped almost into its jaws and ran as fast as

possible away from it. I collected a purple forcefield. I ran in a blind panic towards a big boat with deep holes in it. I but I jumped in and prayed with all my might that the boat would not sink and the monster wouldn't catch up. I stepped out of the boat. I called "Jenny. Jenny. Where are you?" I wandered into the book room and then into a strange temple, and then to rail fell [?] to reveal a bright flame. I ran back to the bridge and then something caught my eye. "Ha ha! I am Lady Searle sorceress and mage." "And all along you thought I was a helpless soul as your personal guide". By now I was feeling helpless and I threw an energy seed onto the floor. As I did so an energy bolt hit me then I threw a forcefield at her "Arrr". She was trapped in the field a glowing purple. "Should we kill her?" "Hmmm. Yes" So we did. "Let's go and see your grandma".

2.12 The Killing of Lady Searle

It was one lovely day on a bank holiday Monday so Daniel and Jenny went to visit their Gran in the nursing home. When they went there Gran gave them both a big hug and kiss. Then after they had a drink she asked them if they would do a big favour for her.

Daniel replied right away and said "Yes, anything for you, Gran." So Jenny obviously had no choice but to say yes. Gran told them where the location was. It was at Kirc mystery hill. Jenny asked what they were to go for and Gran said "To bring back an old friend that I have not seen in many years. His name is Fred".

"Don't worry about transport. I gave an old friend a bell and he said he would take you no problem. Can you go straight away?"

"Yes, Gran!" Daniel yelled.

So we got told to stand at the main door then Gran's friend Eddy came up to us and said "Are you the two kids I've to pick up?" "Yes", Jenny said, so the old man said "Jump in the back and we'll be off". So when they were in the car Eddy asked them where to go so Jenny said to him it was Kirc mystery hill then after Jenny had said that to him he went very quiet and drove off.

Finally after about an hours drive we go there. I got out of the car with Daniel and then Eddy with a fearsome snort skidded into the distance.

The Daniel said “I wonder what got under his skin”. “I don’t know” said Jenny. Then they both looked up open jawed like a codfish staring at a most humungous castle. First they walked around for a bit and Daniel found some scuba gear and dived into the water. So did Jenny. She was just swimming away when a big huge shark bit her on the leg. She gave the most terrifying yell and leapt out of the water. Lucky enough, Daniel happened to pick up a very strange looking seed. Daniel through it about 1 meter in front of him and it sprung to life. Then Daniel said to Jenny “Try and walk over it and it might give you some life”. So she done it and she just sprung back to life and said “That was most refreshing” in a posh kind of voice. The after that they went up a big steep path and a long drawbridge slammed down right in front of them. Then Jenny got split up from Daniel and she met Fred whilst Daniel was in a small room with a gold covered book that could talk. Daniel walked through the big brown door then the talking gold book told him to go through the hall to the right then through the tapestry. Then she told me to go to the door next to the statue and with a great swish the big door slammed up and the book told me to walk onto the bridge. So [“I” scored out] he did and down below were two huge green monsters. The book told him to jump down off the bridge and run past the monsters. So he did and bolted right past them. Then Daniel walked through a hall to a steep case of stairs and all of a sudden Jenny and Gran’s friend Fred came up behind Daniel. Fred told them where to go. He told them to follow him. So they did and they found themselves in a boat so they both got in and set off. Daniel and Jenny were on their own because Fred said he had to go and cast some spells.

So when they got to the other side they got out of the boat and a strange looking witch came up to them . She said “I am Lady Searle” She screeched “and I’m going to take over this castle.”

“That’s what you think!” Daniel yelled.

“We will get Fred on you” Jenny added.

“Oh, your friend Fred is dead! The monsters eat him and I had a bit too. Yum! Yum!”.

Then with a triumphant roar, Daniel said “Die you Fred eater” and he threw a forcefield around her.

Lady Searle shouted “I would have given you half of everything!”. But Jenny said “let’s kill her”. “Yeah” said Daniel. So Jenny chucked the blue orb at Lady Searle and it killed her. Then light footsteps came from behind them. It was Fred. “We killed Searle!” “Well done” said Fred. “She said the monsters ate you”. “Don’t listen to her, she’s a liar.” “hLet’s go and see Gran.” “Yes” replied Jenny and Fred so off they went.

2.13 Unreal

At the entrance of an old ruined castle Jenny and Daniel (brother and sister) is just five minutes away from a great adventure. Their mission is to search for Fred, a goblin, for poor Granny sitting in a nursing home. They have to collect a purple object which is called a bubble, a blue object called a norb and a red book.

Walking up the ramp, their adventure begins. They walk through a corridor, into an arch and find themselves in a room with a table and ladders. Daniel finds the red book, and walks out of the room, and along the corridor. All of a sudden, Daniel finds that his sister, Jenny, is gone and realises that they have been separated. Daniel continued walking forward, searching for Jenny but at the same time looking for Fred. Daniel jumped into the water and swam across. He jumped out of the water and to his amazement, he found Jenny! Daniel was told to follow Jenny when he saw Lady Searle. Lady Searle was tall, had a long purple dress on. Lady Searle was evil, in fact, she was trying to take over the castle. Daniel trapped Lady Searle in the purple bubble Daniel had caught. Jenny killed Lady Searle with the blue norb she had caught. Lady Searle was pleading and pleading but they both agreed to kill her. They walked into a room and found Fred standing beside a table. Daniel got a huge fright when he turned around but he soon got use to it. They both decided to get back to Granny.

2.14 My mission

As me and Jenny started out mission, we walked about to collect items. Me and Jenny were walking up the bridge but then we were separated. We both fell off the bridge but we went in different directions. I fell into a room with a book in it. Someone was

stuck inside it someone bad but I didn't know this. A sweet voice asked me to open the book so I opened the book. A voice helped me go around the castle.

Me and Jenny met again in the water. I was glad to see Jenny because I was worried. Then me, Jenny and Lady Searle all had a conversation. Lady Searle was trying to convince me to go with her. Jenny was trying to get me to stay. I had to choose between my sister and someone that seemed really nice. I said I would go with Lady Searle then she said I would survive for a wee while then I changed my mind because she was going to kill me. Then Jenny thankfully killed Lady Searle. Then I saw Fred. I thought he was a monster so I was going to kill him but I didn't have anything to kill him with then I realized he was Fred. Then me and Jenny completed our mission.

2.15 The Castle of Fear

“My sister and I had a great adventure through a damp and dark castle.” “Me and Jenny got separated when we first went in because Jenny set off before me.” “So let me tell you a bit more about the castle”. “It was on a high mountain with a courtyard right around it, with water under a bridge.” “I followed some little plants I think Fred planted for us!” “I wasn't that worried about Jenny because she was with Fred. And he was brave.” “I picked up a laser forcefield which was purple, a red cross and a book which talked to me.” “The evil witch was a tall figure with a purple dress with flowers on it.” “Her jet black hair was in bunches with pink ribbons.” “Very bravely Jenny killed her with a red cross.” “All before this the witch had captured Fred when he left us”. “So Fred was free again, and we set off to meet Granny Bessy again.” “Oh, and we also killed some monsters too!”

3 Interview with teacher

Senga Munro and Judy Robertson

Friday 16th June, 4pm

Judy: First of all, Senga, what do you think of the game?

Senga: The game itself is so exciting because it is available, it has all the elements of a story in it, it has surprise, it has characterisation, it has decision making, it has suspense. And someone who is not computer literate can use it <laughs>.

Judy: You mean you?

Senga: Yes <both laugh>

Judy: What do you think are the strengths of the game?

Senga: One, it's instantly appealing, because the children know the media and want to use it. Two, it's been devised by someone who understands stories and who also understands how children's minds work and it has infinite possibilities.

Judy: What do you think are the weaknesses of the game?

Senga: The only weaknesses I would say are, that you have to have an adult who is willing to supervise. The numbers are small. I think perhaps if it had been networked this could be overcome. But that was one of the difficulties. But apart from that, nothing else.

Judy : As a teacher how would you link the game with other classroom projects and activities?

Senga: One of the very difficult things is to encourage children to actually suspend their disbelief and write and for children who are not keen about writing, typing proved tremendous. I was so surprised that people who weren't writing anything were willing to sit and type slowly and type their answers and their partner was willing to wait. There are all sorts of spin off of this because it links very well with personal development and social and moral and religious questions including the big question

whether to kill someone or not and why. It has all sorts of possibilities. It also has possibilities for storywriting, it has possibilities for art and for environmental studies.

Judy: Can you explain a bit more about the environmental studies?

Senga: Obviously, at a very simple level, it's a question of right and left and map making, directions. This is excellent and just setting it in a place you don't know and to find to experience creatures that you have never seen before, and you know, you have to think well, why it he like this? There are so many possibilities that could be worked out from this to do with environmental studies as well as story writing.

Judy: How do you think that the other teachers at Sinclairtown responded to the game?

Senga: They were all very positive. Even although they didn't get a great deal of chance to practice it themselves, they saw the benefits from the children and one of the teachers who was computer literate was very keen to carry this on and offered to supervise anything that was going to be done. And it was a very positive opening opportunity.

Judy: In general, do you think the game had an education effect on the children?

Senga: Yes, because it gave them an "I can do it feeling". There wasn't anyone who came out from there not feeling positive, not feeling enabled, not feeling better.

Judy: From the point of view of literacy, do you think the game had an effect on the children?

Senga: Yes. There were quite a few people who had real difficulty writing anything and none of them felt that it was beyond their possibilities because we organised that the stories could be scribed and one of the boys got so carried away with his first scribed story that he insisted he told it again, better. <laughs> And it did affect, it was noticed that it effected his behaviour . he was so positive. And one of the other boys who actually won something for the best responses. It had a tremendous effect on him because I don't think he's ever won anything for academic work in his life!<laughs>

Judy: So, for part of my research I want to do case studies on five children and go into a bit more depth on how they worked with the game, what their stories were like, what effect it had on their motivation and so on. I've selected a child from each of the curriculum grades from A to E and what we're going to do is I'll ask you some questions about your perceptions of each of these children and the way they work in the question. So for level A or A/B is Kim and the first question is how would you describe....

Senga: Will you leave that one, I can't remember her

Judy: OK, we'll go to level B. Christopher. How would you describe Christopher's personality?

Senga: Christopher is very unsettled. He is insecure, he needs a lot of attention, he demands a lot of attention. He behaves like a victim and therefore he is victimised.

Judy: How would you describe his attitude to school work.

Senga: Well, he is quietly improving with help. But he doesn't feel enthused and he feels that he can't do things.

Judy: How would you describe his reaction to writing the story after playing the game? Things like his concentration, his involvement, the quality of the work produced.

Senga: Christopher had his scripted because I knew from speaking to him before and working with him that he had lots of ideas but the minute he got a pencil in his hand the ideas stopped, so in scripting there was a bit first of just encouraging him to ho with it, to say what was happening and to validate his impressions because that was the important thing and his concentration was excellent. The quality of the story was very good. And there were some very good detailed descriptions in this story and this for him was so positive. And there are pictures of Christopher and you can see him and he is really enjoying it and Christopher doesn't usually look like that.

Judy: Did you get a chance to talk to his teacher about the story he produced?

Senga: Yes. The teacher was saying yes, we know Christopher can do things but we don't have the time. So this in another vindication for the game because it gives an opportunity for people like Christopher to have one to one or to have an opportunity to tell a story.

Judy: So, move on to Stephen for level C. How would you describe Stephen's personality?

Senga: Stephen belongs to a part of the school population. His parents are hawkers, I would say. It means that he's quite often not at school, and his values are slightly different from the usual school values. So he has real problems. I mean he is one of the boys who gets into trouble quite a bit umm, but umm, I think that's all I've got to say about that one.

Judy: How would you describe his attitude to school work?

Senga: He is not interested, as you can see from the [pretest] story I think it had three lines or perhaps two lines and there just wasn't anything there. Now this was the boy I previously talked about, who, when he was telling us the story spent ages telling us it, and then came back to do it again because he wanted to make it better and when he the printout it was shown to got shown to his head teacher and his head teacher couldn't believe it and he took it home to his father and it's probably the first good thing he's taken to his father from school.

Judy: So, during the time when you were scribing for Stephen what did you think of his concentration and involvement in the story? And have you got anything to say about the quality of the story he produced.

Senga: His concentration was total. He was ready to say "Oh, that's not good enough, wait a minute" and change it, he thought about it, he wanted to improve it. He was so pleased that he was actually doing something he was interested in. And he was just being positive all the time and he felt he succeeded.

Judy: To what extent do you think that was the effect of the game, and to what extent do you think was it the effect of having someone enthusiastic working with him?

Senga: You can be as enthusiastic as you like, but if you don't have some material to work on, you have to get him first. You have to get him. He has to approve of the material has got to be. And this was his and he took ownership of it.

Judy: So the next person is Grant from level D. Now if you remember, it was Grant and Craig who were the first people to leave Lady Searle alone. Do you want to see his picture?

Senga: Uhuh. [pause]

Judy: It's one of this pair...

Judy: I think that's a general point, that the characters tick out in your mind and it's more difficult to remember the more ordinary children. Ok, but Nadine is far from ordinary. Nadine is working on level E in the curriculum. How would you describe Nadine's personality?

Senga: Nadine is very intelligent. Nadine is Iraqi, English is her second language but she is very confident, or appears very confident. She's very deep thinking. She's fun. And she is very motivated.

Judy: So how would you describe her attitude to schoolwork?

Senga: She is very motivated, she wants to do well. She just enjoys it.

Judy: How would you describe her reaction to writing the story after playing the game, concentration, involvement, and quality of work?

Senga: She was very very concentrated. She always is. But I think there was, because of the visual impact of the story, the quality of her writing was focused, and it was a very good story. I thought.

[End of formal questions. Start of testing out preliminary ideas with Senga]

Judy: So one of the things that I'm trying to establish as I read the stories is whether the game has better effects on the children when they're at different stages. For example, you could say that the children who are doing better anyway benefit more from the game. But actually I think that the opposite might be true in the sense that

the children who are better at writing will do well anyway, and the children who have difficulty will be sufficiently motivated by the game to do better than normal. Comments on that?

Senga: This is definitely true, because of course there were many children who came down and the thing was he won't do very much, he'll be a pest [class teacher's comments], and Martin for instance, Martin wasn't going to be a pest, but Martin will go to a special school after the summer for his secondary education and he certainly produced something far far above what he would normally write. People with attention problems, who just really don't like the situation of school, this was a very focussing experience for them and therefore they wanted to and they did.

Judy: Another thing I'm thinking about is whether the game works better with different types of personalities. I noticed that in Ashley in particular who seemed quite shy to me, do you remember Ashley and Sandy were working together? Ashley seemed quite shy to me but during the game she seemed to come out of her shell more and retreat into again in the questions after although it was clear that she had been thinking very deeply about what had been happening. Have you got any ideas about how personality might interact with the game?

Senga: I think that one of the important things is that during the game Ashley didn't need to be Ashley. Ashley was Jenny or Ashley was Daniel. So that in this role play it did mean that extroverts were fine, but introverts could blossom because they weren't themselves. And of course it was a small group. There were four people, two children, two adults.

Judy: Another thing I'm looking at kind of on the fringe of this is what types of pairs work best. So we picked friendship pairs. And you probably have a better idea than I have about the ability levels within the friendship pairs. So for example, can you remember a higher ability child working with a lower ability child and how did that work?

Senga: Now, let me think. Stewart. Stewart and in fact if you switch off, because I know the two and it'll be on the back [of the photos].[pause] Stewart and Colin weren't ability matched and they weren't particularly friendship chosen because Stewart tended to go with other people as did Colin but Colin was very introvert and

Stewart was very extrovert. And it worked very well. Because Stewart is very I think disaffected with school because he can't concentrate and he was really concentrating and Colin lead him into the discussion, the typing discussion and he was willing to be lead by Colin who was gentler and Colin seemed to calm him down and Stewart seemed to infect Colin with more enthusiasm, and I think it worked beautifully.

Judy: So, can you think of two children in a pair where they each had lower levels of ability curriculum wise and how did that work.

Senga: Catherine and Alan worked together and they are again, they come from the same group as Stephen and that meant that they are not very good at intellectual schooly things but they really really worked on this and they felt somehow that you know they weren't sitting down with a pencil, this was something worthwhile and they worked very well together.

Judy: So other pair ability wise is high ability and I suppose, no I'll let you pick a pair.

Senga: Well it was very interesting because Christopher and Nadine..

Judy: you mean Jonathan

Senga: Oh, yes I always call him Christopher, never mind. Jonathan and Nadine are definitely intellectuals and they're practicing at being intellectuals so they took the game – they were enthusiastic – but they took the game in a detached way and it definitely, when they were answering the questions they were really thinking about things. Which could have been a bit off putting until you realised they had gone home and were absolutely child like in enthusiasm to their parents. [laughs]

Judy: During the game itself I noticed it wasn't necessarily emmm, what I am trying to say... I'm trying to say that the dialogue in the game isn't necessarily correlated with ability in language so that the children who really got the heart of things and had good discussions weren't necessarily the most gifted at expressing themselves and so that I wouldn't necessarily expect to see that their stories would have improved from using the game. But during the game itself they seemed to be thinking deeply.

Senga: I think this actually showed the children's intrinsic values because I remember someone said, you know, "think about your family", you know.

Judy: It was either Craig or Grant

Senga: Exactly, think about your family as Craig, was it Craig? Anyway there were lots of things there when someone suddenly came up with a real value judgement, something they had learned, something they had been taught. But it was definitely a deep feeling, actually probing emotional experience or understanding.

Judy: Do you have any thoughts about gender pairings?

Senga: Eeehhh. No, I don't think it made any difference. I'm trying to think ... No I really don't because the pairs seemed to work very well. I think it was because they were very excited and enthusiastic about it and they wanted to do the game.

Judy: Nearly finishing up now. Have you any thoughts about how you would like to see the game extended?

Senga: Yes. I think that it would be there are so many potential for this because if people can recognise that writing with a pencil is sometimes a great deterrent that learning styles are different and some people will enjoy working in a pair to create or will be able to learn by doing and being interactive I think this would be very good for teachers. I think if nothing else, if it just shows teachers that there are other ways to develop writing or language or language teaching. The fact that you can raise questions that are very important without having to comment on them yourself. That the children will actually justify their beliefs and explain why. It also is very good for persuasion because on several occasions someone persuaded someone not to do the impulsive thing. So that on the purely social and personal development level, and on the moral and emotional level, it is a very good tool because there isn't the same interference of an adult. It seems to be,.. it pulls the adult back so the children can make their own decisions and really discuss.

Judy: So if there was to be a Ghostwriter 2, what would you like to see in it?

Senga: Ahhh. Well, I would think that it would be good to perhaps move it slightly away from the magic mystery and try something which still included decisions and

adventure but which was perhaps more closely related to their children. I know this has difficulties because how can you get it to relate to children when you don't know your target audience because "children" is such a blanket. But perhaps it could be moved slightly towards more realism.

Judy: Is there anything else you'd like to say?

Senga: Just that everyone enjoyed it and today someone said to me "When's that woman coming back because I want to have another shot?" [laughs]

4 Experimental Materials

4.1 Control Group Observation

4.1.1 19/4/00 1.30pm – 3pm Mrs Cassell's Class

Mrs Cassell reads out from my worksheet (see Appendix D.2). She explains to the class that she will read it over quickly and then go back over it .

She says to the class that they had prior knowledge for this assignment because they have Ravenscraig Castle (a ruined castle) down the road. She asks for the names of some castles and the children answer with Edinburgh, Stirling and Duff.

When reading out the section about drawing the mindmap and doing a story plan she says(half to herself) that they would be the same thing.

She says the class will have all this afternoon and maybe some of tomorrow but they will not have an infinite amount of time.

On the blackboard she starts a mindmap, taking suggestions from the children (see Figure D1-1).

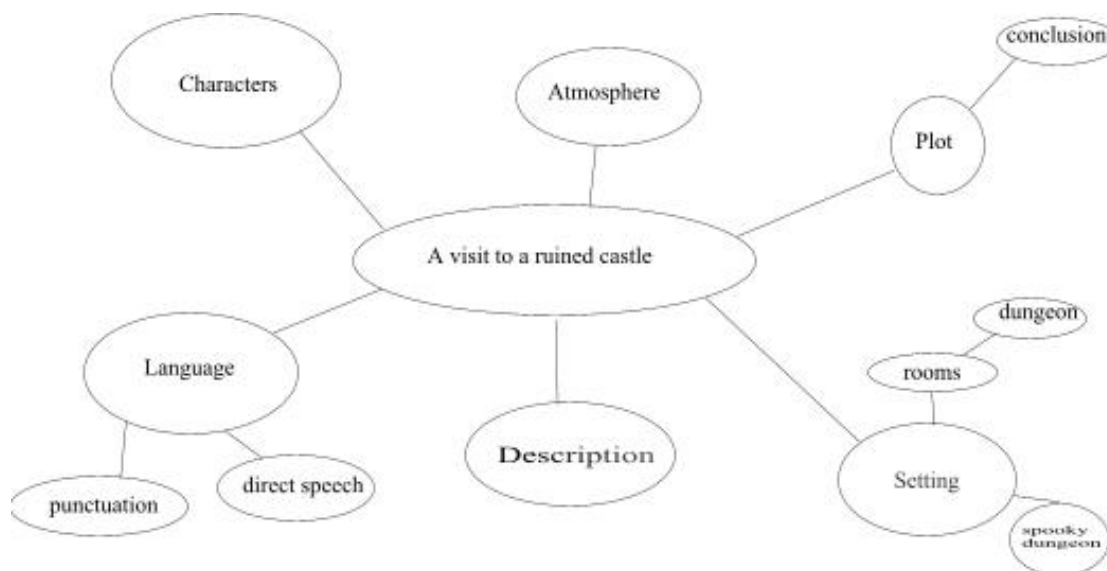


Figure D1-1: Mrs Cassell's Mind Map.

Mrs Cassell: What is in the skeleton of a story?

Mrs Cassell: setting characters, storyline, conclusion, atmosphere

Suggestion from class: use of language, description

Mrs Cassell: You need to know about mechanics of language. Description e.g. haunted

Class member accuses another of reading out suggestions from the wall. Mrs Cassell points out that's why she put them on the wall. There is a small poster on the wall with the requirements for story writing a national curriculum levels C and D. It reads:

Level C:

Tell more about:

When

Atmosphere

Setting

Characters

Main Event

Next Event

Simple ending

Level D:

Describe:

A good opening

Atmosphere

Setting

Characters

Main Events

Next Events

An effective conclusion

Mrs Cassell gets them started on their mind maps. She hands out paper and suggests that the story could be about a school trip but it might be better if it was spooky, horrible, imaginative, haunted.

One of the boys ask if he has to do a mind map and she insists. She says that they don't have awful long to do their mind map.

After another question from another child (I didn't hear it) she stops the class and asks "Is this going to be your story or mine?"

They say "Yours" with no sense or irony.

She says "No! It's yours"

As they start the mind map, she continues speaking. She says that the mind map is the basis for their story and they should think about who comes in, who comes out, are they tall, small, fat, thin, have they got warts?

She says its up to you how limited or imaginative the story is.

She says for some people mind mapping is a way of story planning.

She suggests they include things like "this character is found in the hall, this character only appears when something happens".

She says the mind map will give you ideas for little bits of your story.

She reads a list of words from an old book which has a page full of words of courage and fear. (p19) I didn't catch them all the words, or the book title.

One of the boys asks "are you allowed to include people from this class in the story"

Answer: "Yes".

Mrs Cassell prompts the class to look at the worksheet to help them do the mindmap.

Mrs Cassel reads out the instructions I intended for her. She prompts to include people you might see and meet there, and the beginning ,middle and end.

She stops to explain to Michael, who arrived late, with reference to blackboard.

She reminds the class that the story has to be set in castle rather than anywhere else.

Charlotte asks her a questions and Mrs Cassell explains to her the difference between atmosphere and description.

At 2pm, she stops the class and reads out s story of a frightening experience and asks them to listen to the language, and the way the adjectives are put together.

She reads a passage called “Terror of the Soul” from “Warrior Scarlet” by Rosemary Sutcliff.

After reading she points out that the author changes adjectives when she is describing day and night. She asks “What’s it doing?”

A boy answers “it makes you feel you’re there. you feel the branches cutting your face.”

She asks “Do you think that’s a good description then?”

“Yes”

She says “You can do one as good as that if you use the tools at your disposal. Dictionaries, thesauruses. You can do a smashing one”

She says she likes the bit from the passage about “The whole forest was like some great hunting cat ready to spring”.

She explains this metaphor with reference to a domestic cat “wiggling its bum” when it is ready to hunt.

Mrs Cassell says they don’t have to do a scary story. They could do a story about going down to Ravenscraig Park. But they might want to put a twist in it.

She hands out dictionaries.

Two people have not finished mind maps when she stops the class to think about the story plans.

For the story plans she writes “Who what why where when how” on the blackboard and reads the words out. The class join in a kind of chant. They have obviously heard this before.

She says she wants really good stories, scary, interesting with twists.

A boy asks “Can absolutely anything be in the story?” She re-iterates instructions.

A boys asks “Should you be in the story?” i.e. can the author include himself?

She says “I think so, but it’s up to you”.

She says the storyline must come from the title “a visit to a ruined castle”

She reads from another word list book about character’s appearance: plump, podgy, regal, good humour, haggard, white hair, bristly, brown.

She says “It’s like Steward was saying: you want to write descriptions so the reader is inside the story”.

She says the story should have a good intriguing beginning, with a punch to it, middle and end.

She says they are working to as set of criteria (referring to the worksheet). She says it is like writing in high school where you will be given a title and have to work to it.

A boy asks “Can I give it a different name?”

She says no.

Someone asks “Can I make it a school trip?”

She says “Maybe you could get stuck in the dungeon”.

She tells me they normally would have used pictures as a stimulus. She fetches pictures from previous projects on castles and some books about medieval Scotland. These are put up on the wall and the books are passed round.

Mrs Cassell says she is not looking for punctuation.

She prompts that they need to know who is in the story, why are they there, how did they get away?

Someone asks if the spelling has to be correct. She replies that it's only a draft and they can worry about spelling later.

[I have a conversation with Aran

Aran "Is this story Ok? Is the date OK?"

Judy: "You know this story is set in the future?"

Aran: "Yeah, Hitler's going to come back fro revenge from the dead" (with great enthusiasm)

Judy" What a good idea"]

Mrs Cassell reads out from the book some things castle might have: cannons, ramparts, esplanade, wee castles maybe don't have gun turrets, arrows, slits, generally built on hills. She reads out that life was different in a castle. Mentions castle toilet arrangements.

She says not to get waylaid by reading everything and to keep the story in your head.

[I have another conversation with Aran about my game. I said it was better than Zelda. He says "Cool, Barry".]

Mrs Cassell hands out photos of Stirling Castle. She mentions gun batteries, cannons, rifles. Alan exhibits a desire to cut people's heads off.

[Another conversation with Aran:

Aran: Who made the game?

Judy: Me

Aran: Are you going to sell it?

Judy: No

Aran: Are you going to make copies of it?

Judy: Maybe

Aran: You're so cool!]

Mrs Cassell talks about castle having imposing structure. Aran points out be it can't be if it is ruined. She says it could have maintained some if its grandeur.

Mrs Cassell kids on that the plants on the table are the overgrown castle grounds and that she is fighting her way through them. She goes through pictures of objects found in castles. Mangarell crops up a couple of times.

She says in castle they have gargoyles which are a bit like garden gnomes but vicious and evil. They are on castle walls. They look down at you, and their eyes look at you. They are dwarvish, half animal, half human. Someone suggests that they might come alive at night. She also mentioned statues, ramparts and cremalated buttresses.

She tells Aran that the war is over, after reading the first few lines of his story. They have just been doing a war project but he is fascinated by it. Apparently Mrs Cassells is Hitler's wife in the story.

She suggests that the class look at the pictures to help them describe the architecture. She says the fireplaces were enormous and people could walk right into them. She tells them to use appropriate vocabulary to describe. She mentions mangarell which is a gigantic catapult which is used to batter down walls with rocks.

She says to look at the stone, granite, sand stone.

She says there might be a caretaker at the castle. Someone says there used to be a caretaker at Ravenscraig. Ravenscraig is on a cliff. There are caves which according to rumour, run from the castle to an escape route on the beach. It was used fro smuggling.

She says there are caves at MacDuff castle at Weymss. They run all the way to Markinch. Bonnie Prince Charlie used it as an escape route.

Someone asks which Weymss. She answers "East". Someone's granddad has a scrap yard at East Weymss.

She says you can't use the escape route anymore because the walls have eroded. Someone suggests you could use a mangranell to batter down the walls.

She holds up a photo of Ravenscraig. She reads out a section from a book. It was bought by James 3rd, used by Sinclair family. That's where the name of the area comes from.

Aran doesn't seem to realise that the story plan and mind map should be used to help with the story. He has them covered over and away from him as he does his story.

Mrs Cassells reminds herself she asked for five minutes silence to let them think.

She says there is no limit to what you can write. They will get more time to do this tomorrow morning. If they have any spare time do the draft. Maybe Monday because they have the church and police tomorrow.

Drafts seem to be onto 2nd side for some and only ½ page for others.

[End session]

4.2 Control Group Instructions for Teacher

I would like the control group to write stories *before* they use the computer game. It would be ideal if the control group stories could be written as part of a class activity in the first week (17th –20th April). Note that the experimental group should **not** write this story if they have not yet played the game.

The children should be asked to write a story about a visit to a ruined castle. Ask them to draw a mind map about the things they might see in a ruined castle, and the people they might meet there. Then ask them to draw a story plan of the beginning, middle and end of the story. If it is not possible to make this a class activity, please set aside time for each member of the control group to work from the story instructions on the worksheet.

The children could start the first draft of the story during the lesson and then finish during their free time, either in class or at home. I would like to have the stories on or before Tuesday 25th April.

4.3 Control group workshop



4.3.1 A visit to a ruined castle

Today you are going to write a story about a visit to a ruined castle.

4.3.1.1 Make a Mind Map

Before you write the story, think about the things you might like to put into your story. Draw a mind map for the story. The following questions might help you decide what to include in your mind map.

Story characters

Who is the main character in your story?

Why is he or she at the castle?

Does anyone go to the castle with him or her?

Who does she or he meet at the castle?

Descriptions

What does the outside of the castle look like?

What rooms are there in the castle?

What do the rooms look like?

What do the rooms have in them?

Feelings

How do the characters in your story feel about each other?

How do the characters feel about what is happening to them?

Make a story plan

Now make a story plan. These questions may help you.

What happens in the beginning of the story?

What happens at the end of your story?



What happens in the middle?

Write a story draft

After you have finished your mind map and story plan, write the first draft of your story. You may finish the story in your free time if you do not finish before the end of the lesson. The mind map, story plan and story drafts must be handed in to your teacher on or before Tuesday 25th April.

4.4 Experimental group instructions



4.4.1

Today you will be using a computer game to help give you ideas for writing a story. First of all, Miss Robertson and another helper will show you how to play the game. When you have got the hang of the game controls, you will listen to an introduction.

You and your partner will play the game together for about $\frac{3}{4}$ of an hour. At the end of the game we will take a break and Miss Robertson and the helper will ask you some questions about what you thought of the game. Then each of you will be asked to write your own story based on the adventure you experienced.

The game is based on a computer game called Unreal, but it has been adapted by Miss Robertson. The controls are similar to those in other games you may have played on a PC, but the style is slightly different. In this game there is less action and more talking! You and your friend can type messages to each other within the game and in this way you can have conversations and discussions with each other about what to do during the adventure. This will be helpful to you afterwards when you are writing your story, because you will be given a print-out of the messages you typed to remind you what happened.

During the adventure you will meet other characters. Sometimes you will hear them talk to you and they might also type messages to you.

The most important rule of the game is that **you must not talk to your partner**; you will have to type anything you want to tell him or her.

Another rule is that **you should not tell the others in your class what happens in the adventure**. There is a prize for the pair who use the most imaginative vocabulary in their messages. Please don't tell your class members what happens in the game. If you do then you will increase their chances of winning! The prizes will be awarded after every pair has played the game.

If at any time during this session you do not want to continue please tell Miss Robertson or one of the helpers. If you have problems with the game controls you can consult a helper. Otherwise try to resolve any problems with your partner.

Now Miss Robertson and the helper will show you how to play the game.

4.4.2 Game Introduction

As you have seen, one of you plays Jenny and the other Daniel. They are brother and sister. At the start of the game they have just arrived at the entrance to an old castle.

They want to find an old friend of their granny's. Listen to this message from Granny so that you understand what to do in the game.

Now my dears, I need your help. I've been stuck in this nursing home for six months now and I'm so bored! I need to get in touch with my old friend Fred, but the nurses won't even let me leave the building for five minutes! Will you find him for me? I haven't seen him for many years, but I think he still lives up at the old ruined castle on Kirkmistry Hill. I think there might be something 'going on' up there. I've been in two minds whether to ask you. You see.... it could be risky - but I know how brave you are. If you come across any trouble you can call for me and I will try to help you. Don't look so surprised ! Trust me, there are things about me that you don't know. Ah, but that's all in the past.... It's up to you two now. Can I count on you? Oh, thank you, dears! I knew you'd say ,“Yes.”.

Now you get to play the game!

4.4.3 Instructions for Writing Stories

Now you are going to write a story based on the adventure you took part in. First of all, take five minutes to draw a mind map of the characters and what happened. Then note down a plan of your story, including what happens in the beginning, middle and end. You might like to include powerful words and phrases to use later. You should spend about five minutes on this.

After your plan is complete you may begin your first draft. If you have not finished your story by the end of the session, you may finish it in your own time. Check with your teacher.

The competition will be judged on the 28th of April. You should hand your stories to Miss Robertson before then.

Thank you very much for taking part!

4.5 Pupil Interview Questions

What did you think of the game?

What did you like about it?

What did you dislike about it?

Did you have any difficulty with the controls?

How did you get on typing messages to your partner?

What did you think of Lady Searle? (How would you describe her?)

What did you think about Fred? (How would you describe him?)

When you were separated from your partner did you wonder what was happening to them?

Are you happy with the ending you chose?

Why/ Why not?

Do you have a computer or a Playstation at home?

If so, which games have you played?

Which game is your favourite?

Why

5 Story Assessment Scheme

This appendix provides a worked example of the story analysis scheme outlined in Chapter Three. The categories are applied to the text in one pass, i.e. for each segment of text, codes from all the appropriate categories are applied before moving on to the next segment of text. However, because the categories are overlapping this is difficult to show graphically in a static medium. For this reason, the assessment scheme categories are shown separately for this example story.

5.1 Appearance

The appearance descriptions are highlighted in green in the story below.

Jenny the eighteen year old small brunette and her tall blond brother Daniel, who was very strong were at their Grandma Bessy's house. "I want you two young ones to go up to my friend Fred's house." Said Bessie. "Where's that?" asked Daniel. "The castle at the top of mysterious kirk hill." replied Bessy.

Not knowing what they were putting themselves into Jenny and Daniel set off the Kirk Castle. When they arrived at the castle the two of them were walking up a slope that led to the draw bridge when suddenly Jenny slipped off the slops and fell on the ground right in front of a cave. Jenny got up and walked through the cave until she came to this big empty stadium place. Far away Jenny could see a troll like man approaching her. He said "Hello. I am Fred. Who are you?" Jenny told Fred all about her gran Bessy and she also told him what happened to her. The Fred's face look frightened. He told Jenny about a lady called Lady Searle who was a witch. Fred also said "You must go and find Daniel immediately, but don't go alone, take my dog with you." "What's his name?" asked Jenny. "Just Doggy" replied Fred. Fred's dog looked like a kangaroo with two legs, a long tail and was grey. Jenny followed Doggy but lost him. Just then she saw Daniel with a tall, ugly, black haired woman. Daniel saw Jenny as well and told her this was Lady Searle. The minute Daniel said that name Jenny's face went white. Jenny told Daniel about Fred and what he had said but while Jenny was taking the witch was always trying to persuade Daniel to help her. Daniel trapped her with something he found earlier. Daniel wanted to run and just leave the witch but instead Jenny killed her. Then Fred came and said "Thank you". Then Daniel and Jenny went back home to see their Grandma Bessy.

5.2 Action

The action descriptions are highlighted in blue in the story below.

Jenny the eighteen year old small brunette and her tall blond brother Daniel, who was very strong were at their Grandma Bessy's house. "I want you two

young ones to go up to my friend Fred's house." Said Bessie. "Where's that?" asked Daniel. "The castle at the top of mysterious kirk hill." replied Bessy.

Not knowing what they were putting themselves into Jenny and Daniel set off to the Kirk Castle. When they arrived at the castle the two of them were walking up a slope that led to the draw bridge when suddenly Jenny slipped off the slope and fell on the ground right in front of a cave. Jenny got up and walked through the cave until she came to this big empty stadium place. Far away Jenny could see a troll like man approaching her. He said "Hello. I am Fred. Who are you?" Jenny told Fred all about her gran Bessy and she also told him what happened to her. The Fred's face look frightened. He told Jenny about a lady called Lady Searle who was a witch. Fred also said "You must go and find Daniel immediately, but don't go alone, take my dog with you." "What's his name?" asked Jenny. "Just Doggy" replied Fred. Fred's dog looked like a kangaroo with two legs, a long tail and was grey. Jenny followed Doggy but lost him. Just then she saw Daniel with a tall, ugly, black haired woman. Daniel saw Jenny as well and told her this was Lady Searle. The minute Daniel said that name Jenny's face went white. Jenny told Daniel about Fred and what he had said but while Jenny was taking the witch was always trying to persuade Daniel to help her. Daniel trapped her with something he found earlier. Daniel wanted to run and just leave the witch but instead Jenny killed her. Then Fred came and said "Thank you". Then Daniel and Jenny went back home to see their Grandma Bessy.

5.3 Speech

The dialogue is highlighted in yellow in the story below.

Jenny the eighteen year old small brunette and her tall blond brother Daniel, who was very strong were at their Grandma Bessy's house. "I want you two young ones to go up to my friend Fred's house." Said Bessie. "Where's that?" asked Daniel. "The castle at the top of mysterious kirk hill." replied Bessy.

Not knowing what they were putting themselves into Jenny and Daniel set off to the Kirk Castle. When they arrived at the castle the two of them were walking up a slope that led to the draw bridge when suddenly Jenny slipped off the slope and fell on the ground right in front of a cave. Jenny got up and walked through the cave until she came to this big empty stadium place. Far away Jenny could see a troll like man approaching her. He said "Hello. I am Fred. Who are you?" Jenny told Fred all about her gran Bessy and she also told him what happened to her. The Fred's face look frightened. He told Jenny about a lady called Lady Searle who was a witch. Fred also said "You must go and find Daniel immediately, but don't go alone, take my dog with you." "What's his name?" asked Jenny. "Just Doggy" replied Fred. Fred's dog looked like a kangaroo with two legs, a long tail and was grey. Jenny followed Doggy but lost him. Just then she saw Daniel with a tall, ugly, black haired woman. Daniel saw Jenny as well and told her this was Lady Searle. The minute Daniel said that name Jenny's face went white. Jenny told Daniel about Fred and what he had said but while Jenny was talking the witch was always trying to persuade Daniel to help her.

Daniel trapped her with something he found earlier. Daniel wanted to run and just leave the witch but instead Jenny killed her. Then Fred came and said "Thank you". Then Daniel and Jenny went back home to see their Grandma Bessy.

5.4 Location

The location descriptions are highlighted in pink in the story below.

Jenny the eighteen year old small brunette and her tall blond brother Daniel, who was very strong were at their Grandma Bessy's house. "I want you two young ones to go up to my friend Fred's house." Said Bessie. "Where's that?" asked Daniel. "The castle at the top of mysterious kirk hill." replied Bessy.

Not knowing what they were putting themselves into Jenny and Daniel set off to the Kirk Castle. When they arrived at the castle the two of them were walking up a slope that led to the draw bridge when suddenly Jenny slipped off the slope and fell on the ground right in front of a cave. Jenny got up and walked through the cave until she came to this big empty stadium place. Far away Jenny could see a troll like man approaching her. He said "Hello. I am Fred. Who are you?" Jenny told Fred all about her gran Bessy and she also told him what happened to her. The Fred's face look frightened. He told Jenny about a lady called Lady Searle who was a witch. Fred also said "You must go and find Daniel immediately, but don't go alone, take my dog with you." "What's his name?" asked Jenny. "Just Doggy" replied Fred. Fred's dog looked like a kangaroo with two legs, a long tail and was grey. Jenny followed Doggy but lost him. Just then she saw Daniel with a tall, ugly, black haired woman. Daniel saw Jenny as well and told her this was Lady Searle. The minute Daniel said that name Jenny's face went white. Jenny told Daniel about Fred and what he had said but while Jenny was taking the witch was always trying to persuade Daniel to help her. Daniel trapped her with something he found earlier. Daniel wanted to run and just leave the witch but instead Jenny killed her. Then Fred came and said "Thank you". Then Daniel and Jenny went back home to see their Grandma Bessy.

5.5 Mood/Objects and animals

The mood and object/animal descriptions are highlighted in yellow and green respectively. There are no examples of the relationships, personality or weather categories in this story.

Jenny the eighteen year old small brunette and her tall blond brother Daniel, who was very strong were at their Grandma Bessy's house. "I want you two young ones to go up to my friend Fred's house." Said Bessie. "Where's that?" asked Daniel. "The castle at the top of mysterious kirk hill." replied Bessy.

Not knowing what they were putting themselves into Jenny and Daniel set off to the Kirk Castle. When they arrived at the castle the two of them were walking up a slope that led to the draw bridge when suddenly Jenny slipped off the slope and fell on the ground right in front of a cave. Jenny got up and walked through the cave until she came to this big empty stadium place. Far away Jenny could see a troll like man approaching her. He said “Hello. I am Fred. Who are you?” Jenny told Fred all about her gran Bessy and she also told him what happened to her. The Fred’s face look frightened. He told Jenny about a lady called Lady Searle who was a witch. Fred also said “You must go and find Daniel immediately, but don’t go alone, take my dog with you.” “What’s his name?” asked Jenny. “Just Doggy” replied Fred. **Fred’s dog looked like a kangaroo with two legs, a long tail and was grey.** Jenny followed Doggy but lost him. Just then she saw Daniel with a tall, ugly, black haired woman. Daniel saw Jenny as well and told her this was Lady Searle. The minute Daniel said that name Jenny’s face went white. Jenny told Daniel about Fred and what he had said but while Jenny was taking the witch was always trying to persuade Daniel to help her. Daniel trapped her with something he found earlier. **Daniel wanted to run and just leave the witch** but instead Jenny killed her. Then Fred came and said “Thank you”. Then Daniel and Jenny went back home to see their Grandma Bessy.

5.6 Overview

The purpose of the coding scheme is to describe the characterisation and setting in children’s stories. The categories are listed below:

5.7 Characters:

Appearance
Action
Speech
Relationships
Mood
Personality

5.8 Setting:

Location
Objects and Animals
Weather

In each of these categories, the description can be simple or detailed. Figurative language may be used. For character categories, mood, personality or relationships may be *implied* through use of speech, actions or appearance categories.

5.9 Codes List

Action, figurative
 Action, mood
 Action, personality
 Action, plot
 Action, relationships
 Action, simple
 Action, detailed
 Appearance, detailed
 Appearance, facial expression
 Appearance, figurative
 Appearance, mood
 Appearance, personality
 Appearance, relationships
 Appearance, simple
 Location, characters
 Location, figurative
 Location, time
 Location, detailed
 Location, place
 Location, simple
 Mood, detailed
 Mood, figurative
 Mood, implausible
 Mood, personality
 Mood, relationships,
 Mood, simple
 Object, animal
 Object, character
 Object, detailed
 Object, figurative
 Object, simple
 Personality, detailed
 Personality, figurative
 Personality, simple
 preference
 Reasoning detailed
 Reasoning Simple
 Relationship, detailed
 Relationship, figurative
 Relationship, implausible
 Relationship, personality
 Relationship, simple
 Sensation implies mood
 Sensation related to actions
 sensation related to surroundings
 Speech copied from game printout
 Speech, action
 Speech, detailed

Speech, location
 Speech, mood
 Speech, object
 Speech, personality
 Speech, plot
 Speech, relationship
 Speech, simple
 Speech, weather
 Switch between first and third person
 Weather, detailed
 Weather, figurative
 Weather, simple

5.10 Scope

The story text is **not** pre-segregated into units. Since the categories of interest do not usually coincide with grammatical structures, the codes should be marked at the section of text which belongs to a certain category, regardless of sentence boundaries. More than one code may apply to the same marked section of text. There may be overlapping sections of marked text.

5.11 Action

This category is for descriptions of character's movements. Verbs are obvious candidates for action codes. If a character sees, hears or smells something this is counted as an action even although these actions are passive in some sense. Waiting is counted as an action. Verbs such "shouted" or "whispered" are coded as speech rather than action. Verbs referring to facial expressions such as "smiling" should be coded as appearance rather than action. Verbs such as "decided" should be coded as reasoning rather than action. Hypothetical actions like "Lady Searle was going to feed Fred to the fishes" can be coded as actions. Objects can perform actions, not just characters

Code: Action, figurative

Action is figurative rather than literal. This code includes simile, metaphor and exaggeration where it has been used for effect.

Example: "He jumped out of his shoes in misbelief"

Code: Action, mood

Action implies mood of character. Actions such as running away from something scary, hitting someone, crying, and so on, indicate the mood of a character without necessarily stating it explicitly.

Example: “I ran in a blind panic towards the big boat with deep holes in it”

Code: Action, personality

Action implies personality of character. Some writers establish personality traits through habitual actions. This is the kind of thing which would come out in a longer piece of writing. For example, the character Neville Longbottom in “Harry Potter and the Philosopher’s Stone” is established as clumsy and forgetful through a number of incidents where he loses his toad and forgets the password to the Gryffindor common room.

Example: none from corpus so far.

Code: Action, plot

Action contributes to plot. For game stories, any action which refers to these plot points should use this code:

Grandma tells the children to go find Fred

Daniel and Jenny get split up

Jenny finds Fred

Daniel finds book

Daniel meets monsters

Fred or doggy guides Jenny

Daniel and Jenny meet up again

Daniel and Jenny meet Lady Searle

Daniel or Jenny trap Lady Searle

Daniel or Jenny kill or release Lady Searle

They meet Fred

For non-game stories it is harder to determine. As a guide, actions which alter the current situation in a big way, or pose or resolve a problem for a character may be plot points. For example, a character gets lost, a character is killed.

Example: “Very bravely, Jenny killed her.”

Code: Action, relationships

Action implies relationships between characters. Any action or gesture which conveys the attitude of one character to another should use this code. This can be simple, as in “I killed Lady Searle” where the action of killing her obviously means that I don’t like her. It can also be more subtle, for example if I follow Fred without question, that indicates that I trust him. The writer need not purposely exploit this technique for it to count.

Example: “Daniel followed me”

Code: Action, simple

Simple description of action. Any action coded text which is not detailed is simple.

Example: “Daniel threw the item.”

Code: Action, detailed

Detailed description of action. If the way the action is carried out, or what is used to carry it out is mentioned, then it is detailed. Adverbs are detailed. If the phrase is to do with motion, and the destination is given then it is detailed. If there are actions in a sentence joined by “and” then code them separately.

If there is a series of simple actions which explain a final action then the final one can get coded detailed because the reason has been given in the previous actions

Example: “So I used an orb to kill her”

5.12 Appearance

Text which contains a description of a character’s appearance, facial expressions, clothes and accessories (e.g. spectacles) should be coded as appearance

Code: *Appearance, detailed*

Detailed description of appearance. If the phrase has more than one adjective then it is detailed. If a facial expression has an adjective or adverb describing it, then it is detailed. If the phrase is a comparison or simile, count the adjectives in the description of the object which is the comparison.

Example: “Her jet black hair was in bunches with pink ribbons”

Code: *Appearance, facial expression*

Description of facial expression, or change in colour etc.

Example: “The minute Daniel said that, Jenny’s face went white”

Code: *Appearance, figurative*

Description of appearance is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: “She had a face like a fish”

Code: *Appearance, mood*

Appearance implies character's mood. Facial expressions such as frowning or smiling indicate a character’s emotion.

Example: “Then Fred’s face looked frightened”

Code: *Appearance, personality*

Appearance implies character's personality. Habitual facial expressions, general cleanliness, vanity are some examples of personality attributes which can be inferred from appearance descriptions.

Example: “Her eyes are a dark brown with two pupils, dark and furious”

Note: The above example is counted as denoting personality rather than mood because the context implies that is a general state of affairs rather than a specific instance.

Code: *Appearance, plot*

Appearance contributes to plot. If the appearance of a character motivates other characters into a course of action which changes the plot, or if disguises are used, this code should be used.

Example: Many fairy stories rely on the beauty of the heroine to explain the behaviour of the heroes and consequently the story events.

Code: *Appearance, relationships*

Appearance implies relationship between characters. Facial expressions can denote how story characters felt about each other, smiles, frowns, winks directed at another character, or facial expressions or postures which react to another's predicament all count. Also, a character dressing to impress would count.

Example: “The minute Daniel said that Jenny's face went white.”

Note: In the above example, Jenny goes white because she knows that Daniel has just encountered the witch and she is worried about him.

Code: *Appearance, simple*

Simple description of appearance. Any appearance segment which is not detailed is simple.

Example: “He was all green”

5.13 Location

The time or place of the story are mentioned. These are common codes, particularly in personal experience style stories.

Code: *Location, figurative*

The location description contains figurative language. Description of location is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: “Jenny and Daniel is just five minutes away from a great adventure”

Code: *Location, time*

Some sort of time ordering is placed on events. Measuring time in sets of actions is counts as time e.g. “When we had finished eating...”, as well as days, months, hours and so on.

Example: “Meanwhile” “Then” “When”

Code: *Location, detailed*

The location description is detailed. Dates are detailed, e.g. the day before Christmas or the 2nd of February. Names of places such as “The Home with the 99 windows” are detailed. Descriptions of a place with more than two adjectives are detailed. Smells for a location are considered detailed.

Example: “It was on a high mountain with a courtyard right around it”

Code: *Location, place*

The geographical setting of story is mentioned. This can be on the large scale of countries and cities, or on a smaller scale such standing behind or in front of something. Any landmarks in environment are geographical location, such as gates, staircases, bridges.

Example: “We went to the ruined castle”

5.14 Mood

The general mood, or current emotional state of the character is mentioned.

Code: *Mood, detailed*

Description of mood is detailed. A reason or explanation or elaboration is given for the mood.

Example: “I was surprised because I thought Fred was a human being”

Code: *Mood, figurative*

Figurative language used to describe mood. Description of mood is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: “I felt a cold shiver of fear run down my back.”

Code: *Mood, implausible*

Mood is implausible for given circumstances. A gauge of the writer’s ability to grasp how people feel in particular situations. More likely to be found in stories by younger children. The personality and relationships of the story character should be taken into account – it may be plausible, for example, for Lady Searle to be happy that Jenny is dead, whereas it would be implausible for her brother to be pleased.

Example: none from corpus yet.

Code: *Mood, personality*

Mood implies personality. A character’s emotional reaction to an event can give a clue to their personality. For example, Lady Searle might be gleeful if Jenny or Daniel hurt themselves, whereas a more caring soul would be sympathetic.

Example: none from corpus yet

Code: *Mood, relationships*

Mood implies relationships between characters. A character's emotional reaction to another's situation, or feelings evoked by an encounter with the character come under this code.

Example: "I was so glad to see him"

Code: *Mood, simple*

Description of mood or attitude is simple. Any mood coded segment which is not detailed is simple.

Example: "I was worried before"

5.15 Object

Objects or animals are mentioned in the story. Vehicles are counted as objects, but landmarks such as staircases or paths are not.

Code: *Object, animal*

An animal or creature is mentioned. If the animal has a large part in the story, and it anthropomorphised, then it should be counted as a character rather than an animal. For example, in "Mrs Frisby and the Rats of Nimh", the characters are all animals, but would not come into this category, whereas Fred's dog in the game does count as an animal because it doesn't have a very large part to play and it doesn't speak.

Example: "A huge shark bit her"

Code: *Object, detailed*

The object is described with detail. Two or more adjectives are used to describe the object or the object's location is mentioned.

Example: "Then the talking gold book told him to.."

Code: *Object, figurative*

The object description contains figurative language. Description of object is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: none from corpus yet

Code: *Object, simple*

The object has a simple description. Any object coded segment which is not detailed is simple.

Example: “Daniel found some scuba gear”

5.16 Personality

The personality, traits or attitudes of the character are explicitly mentioned.

Code: *Personality, detailed*

Personality is described in detail. More than one adjective is used to describe the personality.

Example: “He was very very kind”

Code: *Personality, figurative*

Figurative language is used to describe personality. Description of personality is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: “She was missing a screw”

Code: *Personality, simple*

Simple description of personality. Personality coded segments which are not detailed are simple.

Example: “And he was brave”

Code: *preference*

A character's preference is indicated. This code was introduced to record character's likes and dislikes, for example hobbies or favourite foods.

Example: none from corpus

Code: *Reasoning detailed*

The character's thought process is recorded. Detailed reasoning includes explanations of why a conclusion was reached, or an elaboration of the problem facing the character.

Example: "I thought he was a monster so I was going to kill him"

Code: *Reasoning Simple*

A character's thought is recorded, but with no explanation.

Example: "I didn't believe her"

5.17 Relationships

The attitude a character has to other characters, or a family connection.

Code: *Relationship, detailed*

The relationship is described in detail. An elaboration, explanation, or reason is given for the character's feelings or attitude towards another.

Example: "I wasn't that worried about Jenny because she was with Fred"

Code: *Relationship, figurative*

Figurative language is used to describe the relationship. Description of relationship is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: none from corpus

Code: *Relationship, implausible*

The relationship is implausible given the circumstances. A gauge of the writer's ability to grasp how relationships work. More likely to be found in stories by younger children. The personalities of the story characters should be taken into account – Lady Searle has an exaggeratedly bad relationship with the children, but she is pretty evil to start with.

Example: none from corpus

Code: *Relationship, personality*

Relationship indicates personality. The way a character's attitude to another changes, when story events change circumstances give an indication of the character's personality. For example, if Jenny decided to forgive Lady Searle and let her go free in spite of their previous differences, it would tell you that Jenny is a forgiving person.

Example: none from corpus

Code: *Relationship, simple*

The relationship is described simply. Factual relationships, including statement of family relationships, or bald statements of attitude which do not give explanation.

Example: “The book was the witch” “Jenny and Daniel were brother and sister”

Code: *Sensation implies mood*

Bodily sensation like pain or pleasure which would have bearing on mood.

Example: none from corpus

Code: *Sensation related to actions*

A previous action has given a character a sensation or pain, nausea, pleasure

Example: “I wasn't dead or hurt that bad”

Code: *sensation related to surroundings*

The environment has an effect on the bodily sensations, tastes, smells, touch sensations the character experiences.

Example: none from corpus

5.18 Speech

Speech between characters is recorded. Can be direct speech, or a report of a conversation. Written word, such as included newspaper reports, also counts as speech. Character agreeing on something or discussing something also counts as speech. Speech segments are divided up by inverted commas – several sentences inside one pair of inverted commas counts as one segment..

Code: *Speech copied from game printout*

Pre-scripted utterances from Lady Searle or Fred, or Granny which the pupil has copied verbatim from the game transcript. See Appendix A, and individual game transcripts for a complete list.

Example: “Mmm, the air smells so fresh. I thought I was going to be trapped in that room forever”

Code: *Speech, action*

Speech indicates that some action is happening.

Example: “The book was telling him to run”

Code: *Speech, detailed*

Detailed way of speaking included. Adverbs which explain what tone of voice or volume was used are detailed.

Example: “Then with a triumphant roar, Daniel said “Die, you Fred eater!”

Code: *Speech, location*

Speech contains location description. Some pupils will use dialogue to describe the surroundings.

Example: “Jenny, look at that building – it’s ancient!”

Code: *Speech, mood*

Speech indicates mood. The way the character speaks or the content of what they say implies or states emotion.

Example: “Help!” said a screaming Jenny.

Code: *Speech, object*

Speech refers to object.

Example: “Trap her in your purple bubble and I will kill her with my blue norb”

Code: *Speech, personality*

Speech indicates personality. The content of the speech, or the way it is said indicates the character’s attitude.

Example: “Oh , your friend Fred is dead. The monsters ate him and I had a piece too. Yum yum.”

Code: *Speech, plot*

A plot point is revealed through dialogue. For the game stories, any of the plot points detailed in the action section use this code if revealed by speech.

Example: “I want you to find Fred”

Code: *Speech, relationship*

Speech indicates relationship by the way it is spoken or content which implies or states relationships between characters.

Example: “Bessie, your best friend”

Code: *Speech, simple*

Simple speech reported. Any speech segment which is not coded as detailed is simple

Example: “Ok, Gran”, said Daniel.

Code: *Speech, weather*

Speech contains weather. A character makes a remark about the weather or atmosphere

Example: none in corpus

Code: *Switch between first and third person*

Less able pupils occasionally switch between first second and third person during the course of a story. Record it every time it happens.

Example: n/a

5.19 Weather

The weather, temperature or atmospheric conditions such as dust is mentioned.

Code: *Weather, detailed*

Weather description is detailed. More than one adjective is used to describe the weather.

Example: “The musty air was a change to the clean country air”

Code: *Weather, figurative*

Weather description contains figurative language. . Description of weather is something other than the literal truth. Simile, metaphor or exaggeration for effect count as figurative.

Example: “Dust charged around, everywhere!”

Code: *Weather, simple*

Weather description is simple. Any weather segment which is not detailed is simple.

Example: “It was a cold day”

6 Statistical Information

6.1 Control/Pre-game comparisons

Table F-1 shows the descriptive statistics for in the main categories and word count in the control and pre-game stories.

	Control stories		Pre-game stories	
	Mean	Std Dev	Mean	Std Dev
Word count	628.095	304.860	325.000	233.923
Simple	12.059	2.629	10.806	3.364
Detailed	6.711	1.601	6.068	2.563
Figurative	0.371	0.434	0.468	.539
Location	12.632	6.213	9.972	5.431
Action	7.978	2.935	5.756	2.845
Appearance	0.817	0.680	1.682	1.813
Speech	4.365	3.840	2.772	3.694
Moods overall	1.571	1.100	1.004	1.069
Relationship overall	1.137	0.663	1.196	1.288
Personality overall	0.442	0.463	0.439	0.592

Table F-1: Descriptive statistics for control and pre-game stories.

A multivariate analysis of variance with control stories and experimental pretest stories as the group factor, and the categories of the story analysis scheme as dependent variables, showed no overall significant differences (Wilk's lambda = .517, $p=.021$).

The tests of between-subjects effects for each of the dependent variables are summarised in Table F-2. Differences between groups in were significant for word count only(significant values in these tables are indicated by italics).

Dependent variable	F	Significance
Word count	13.065	.001
Simple	1.809	.186
Detailed	.952	.335
Figurative	.409	.526
Location	2.181	.148
Action	6.203	.017
Appearance	4.195	.047
Speech	1.876	.178
Moods overall	2.870	.098
Relationships overall	.035	.853
Personality overall	.000	.984

Table F-2: Tests of between-subjects effects.

The difference in word count can be explained by the fact that the control stories are second or third drafts, so the children have had a longer time to write their stories.

6.2 Test for univariate normal distribution

The results of the Shapiro-Wilks test for univariate normal distribution of the dependent variables in the three conditions are summarized in Tables F3-F5.

Dependant variable	Shapiro-Wilks	Significance
Word count	.937	.252
Simple	.966	.617
Detailed	.973	.754
Figurative	.815	.010
Location	.693	.010
Action	.954	.441
Appearance	.914	.071
Speech	.901	.039
Moods overall	.947	.361
Relationships overall	.955	.450
Personality overall	.859	.010

Table F-3: Shapiro Wilks tests for control stories.

Dependant variable	Shapiro-Wilks	Significance
Word count	.851	.010
Simple	.967	.630
Detailed	.960	.496
Figurative	.517	.010
Location	.953	.428
Action	.987	.981
Appearance	.714	.010
Speech	.986	.971
Moods overall	.873	.010
Relationships overall	.975	.800

Personality overall	.767	.010
---------------------	------	------

Table F-4: Shapiro Wilks tests for post-game stories.

Dependant variable	Shapiro-Wilks	Significance
Word count	.881	.015
Simple	.951	.405
Detailed	.946	.352
Figurative	.838	.010
Location	.958	.482
Action	.936	.243
Appearance	.842	.010
Speech	.718	.010
Moods overall	.821	.010
Relationships overall	.793	.010
Personality overall	.731	.010

Table F-5: Shapiro Wilks tests for pre-game stories