

# Chapter 19. An Evaluation of Tertiary Language Learning through Student-constructed Multimedia – the Interactive Stories Approach

---

Participants: Michelle Valdrighi, Michael Fardon  
University of Western Australia

Mentor: Rob Phillips, Murdoch University

## 1. Introduction

This paper describes an evaluation study of a teaching approach called Interactive Stories [IS] which was introduced into language departments in the Faculty of Arts at The University of Western Australia [UWA]. The work arose from a staff development project funded by CUTSD (the Committee for University Teaching and Staff Development) and facilitated by ASCILITE (the Australasian Society for Computers in Learning in Tertiary Education). The project was guided by the principles and methodologies outlined in the “Handbook for Learning-Centred Evaluation of Computer-Facilitated Learning Projects in Higher Education” (Phillips, 2000).

### 1.1 Background

*It's nice to do a project that you can show off to people, something that you have creative control over... It's interesting and you learn new skills. (Interview with advanced level French student participating in project.)*

For several years, the Multimedia Centre (MMC) in the Faculty of Arts at UWA has been exploring ways of promoting creative and innovative use of multimedia, especially by students. One major focus has been in integrating multimedia work into mainstream courses of study in the humanities and social sciences. One aspect of this is the Interactive Stories model, where students create their own language learning projects. The generic skills associated with student multimedia projects are becoming increasingly important in a society where “changing work practices have increased demands for information technology [IT] skills within non-IT professions” (Lawson, 2000, p.87).

In 1996, Fardon visited the “Burning the Interface” exhibition at the Museum of Contemporary Art in Sydney. One particular exhibit, “Virtual Persons” by Luc Courchesne (University of Montreal), so inspired Fardon that he developed a model for student-produced multimedia. The model utilises the StoryTime (Fardon, 1997) authoring tool, developed by the MMC, which allows the author to configure relationships between text, visual and audio media on screen using a variety of interfaces.

In Interactive Stories, students work in groups to create an interactive conversation with the user. One side of the ‘conversation’ is provided by digital video segments played on the computer. After each segment, the user is presented with a set of branching points, usually presented as text. As a choice is made, a subsequent video segment is played, resulting in a complex interweaving of narratives and responses. The end result, is a multimedia version of a ‘choose your own adventure’ story. Students who participate in the IS programme are asked to create one of these for their peers to use.

Figure 19.1 shows an example of an Interactive Story created by students using StoryTime. The user chooses from the text options on the left hand side of the screen and a response to the chosen statement appears on the movie screen, which, in turn, links to more text options and so on.

The IS concept was first used by Valdrighi, a tutor in Italian, who developed her own multimedia module for use in an ‘Introductory Italian Language’ course in order to create an environment where students could ‘virtually’ go shopping in Italy and learn useful phrases for purchasing in Italian. In second semester

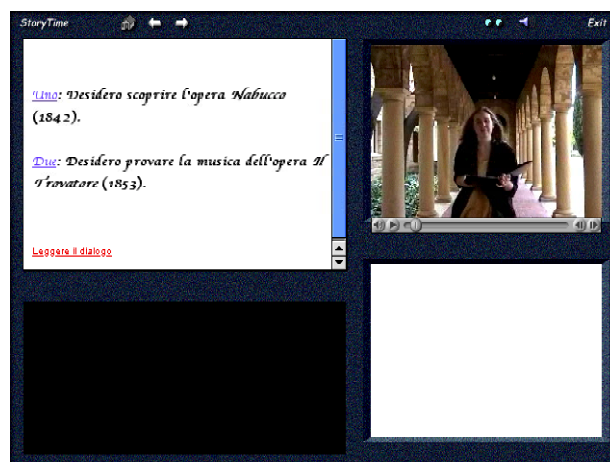


Figure 19.1. A student-produced Interactive Story.

1999, a lecturer introduced the 'Interactive Stories' model into an advanced level course in French language (Jacomard, 2001). Sixteen students, in pairs, scripted, filmed and authored their own multimedia modules, which were all variations on the basic virtual person idea. Students had access to a modern computer-equipped classroom, digital cameras, access to MMC technical expertise and relevant training material. Lawson and de Matos (2000) pinpoint lack of training and insufficient access to resources, as some of the major barriers to effective integration of technology in teaching. The partnership between the technical personnel of the MMC and teaching staff was planned to overcome these potential hazards.

Subsequent to the perceived success of the initial trial of Interactive Stories, the authors presented the student projects in a seminar with staff members from the other language departments in the Faculty, four of whom decided to integrate the approach into their courses in 2000. It became evident that a growing number of language teaching staff were interested in using the IS approach. At the same time, the MMC decided to evaluate the use of IS and the student learning resulting from the approach, and this paper is the result of that evaluation.

The Interactive Stories approach actively involves students in scripting a narrative or dialogue, filming appropriate segments, editing them and then constructing a multimedia version of their script. Students further their technological aptitude through exposure to the StoryTime authoring software, iMovie and

QuickTime software, digital video, and the digitisation and manipulation of audio-visual resources. By creating their own material and bringing it to life, observing their creation in action, it was felt that students would gain "a greater appreciation of the subtlety and nuance of linguistic interaction, and learn some of the skills necessary to shape and motivate their own language learning progress." (Riggenbach, 1988, p.118).

The script produced by students is refashioned in a number of editing phases, one of which is a result of feedback provided by the class teacher in the first round of marking. It is important to note that unit coordinators have chosen to ask intermediate and advanced students to create situations that hold a particular social, historical or cultural relevance to the target language. In order to meet this requirement students may choose to consult a number of resources: other students, teachers, native speakers, texts or other audio-visual aids. Students are asked to pay attention to the registers of language and the delivery of the spoken language so as to recreate an ambience which is true to the contextual atmosphere of their chosen topic.

## 1.2 The Interactive Stories Approach Framework

*Constructivists claim that we construct our own reality through interpreting our experiences in the world... If learners actively build their own interpretations of the world, they have more ownership of those thoughts... (Jonassen, 1996, p.12)*

The IS approach is influenced by constructivist theories of learning, with three aspects as depicted in Figure 19.2.

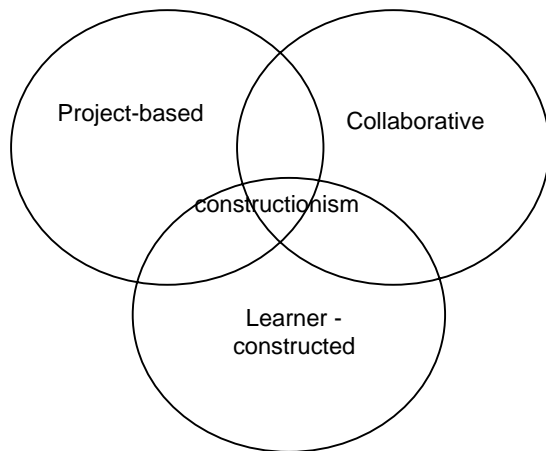


Figure 19.2. Constructivist view of the IS approach.

Figure 19.2 identifies three key elements as interdependent themes which are linked by their connection to constructionism. Papert (1993) describes constructionism as giving students things to do so they can learn it as pertaining to something real. This makes the learning experience more meaningful and memorable. Jonassen (1996) points out that what constructivism and constructionism have in common is that they focus upon the learner as an active constructor rather than a passive receiver. The principal aim of any strategy implemented in a language teaching program is to advance the linguistic aptitude of the learner. Current thinking supports student-centred approaches in the teaching and learning process, where the student is an active participant and where there is a greater emphasis than before on learner interaction (Meskill, 1999; Jager et al. 1998).

The first element which defines the IS approach is that it is project-based. The primary outcome is a physical product – a multimedia program that students produce and present to their class. Research supports project-based learning (Barson, 1997; Debski, 1997; Meskill, 1999):

*In a profound way, physical products make learning public. Having a physical product during as well as after a learning activity keeps learners thinking, communicating and*

*speculating about what might come next. (Fisher, 1996, p.122).*

Similarly,

*Project-based learning of this kind facilitates a depth of engagement that is not easy to match with other approaches. Once adult learners realise that they have real control over the project specification and outcome, their interest, motivation, and commitment increase, and their natural sense of pride and ownership in the work are enhanced also. I would suggest that this environment is immensely beneficial for all kinds of learning, not only for language teachers, but also for language learners. (Levy, 1997, p.197)*

The second element of the IS approach is that it is collaborative, assuming that learning is constructive and social. In addition to this, “in collaborative learning situations, students generally experience a shift in their intellectual development as they learn to articulate their own point of view and listen to the view of others” (Goodsell, 1992 p.11). Some students find it difficult to work effectively in a collaborative environment, but this can be rewarding if it is approached and planned carefully and the complexities are considered and clearly acted upon (Levy, 1997).

The third element of the IS approach is that it is learner-constructed. By this it is meant that students use computer-based composition applications to create their projects. Jonassen explains that certain computer applications “require students to think in meaningful ways in order to use the application to represent what they know” (Jonassen, 1996, p.3). He defines these applications as ‘Mindtools’. StoryTime and iMovie are two such Mindtools that students utilise as part of the IS approach. StoryTime is a hypertext-based composition tool, while iMovie is video-based:

*With a little experience, individuals can become their own artists, publishers or video producers. (Jonassen, 1996 p.3)*

It is also important to note that students are constructing stories that are non-linear thus giving them the experience of engaging in language and logic in a real world that is not linear but multidimensional. This is an important aspect of teaching language interaction as Gambhir (1995) points out.

## 2. Evaluation Plan

In designing an evaluation of Interactive Stories, the focus was on investigating the pedagogical status and implications of the approach, as it imposes a new structure into language teaching.

A series of evaluation questions were investigated in the context of an evaluation framework appropriate for the implementation of technology innovations in higher education. The evaluation questions required that the framework cater for both formative monitoring and summative evaluation processes. It was also important that the evaluation process be reflective given the interdependence of the questions identified, ie. the learning that is taking place will affect the assessment procedures that will be adopted.

### 2.1 Evaluation Framework/paradigm

The development of the evaluation plan of this study was informed by the Learning-centred Evaluation (LCE) Framework described in Phillips et al. (2000), and Bain (1999). This framework, derived from earlier work by Alexander & Hedberg (1994), has three main characteristics:

- it presumes that evaluation will occur in each of the major phases of an educational project (design, development, implementation, and institutionalisation);
- it outlines the types of evidence and methods that may be appropriate for each phase; and
- it demonstrates how close attention to the learning process and learning outcome should be threaded through all phases of the evaluation. (Bain, 1999, p.4).

The LCE framework acts as a scaffold for the development of specific questions, by breaking down the lifecycle of an educational innovation into phases, and explicitly distinguishing the roles of the learning environment, the learning process and the learning outcome.

In this work, the LCE framework has been expressed as a matrix (see Table 19.1). The left-hand side of Table 19.1 contains the phases and foci of the LCE framework. The third column of Table 19.1 displays the specific evaluation questions that we developed by working through the framework.

The use of the LCE framework aided us in *focussing* on the types of questions to ask.

This research is grounded in an interpretive paradigm, which was felt to be most appropriate for eliciting information about student learning in complex situations. The intention was to understand the learning taking place at different levels in a natural and non-manipulated environment. An eclectic approach has been taken to choosing the methods used to obtain information to answer the questions posed in Table 19.1. However, qualitative sources of data were used in most cases, because the richness of such data will yield insights about the actual learning *processes* used by students. This is discussed further in the following section.

### 2.2 Data Sources

For each question in Table 19.1, we considered the most appropriate source(s) of data to provide evidence to answer the question. This analysis resulted in six generic data production methods: assessment, documentation, staff group interviews, student interviews, journals and observation. The questions to which the data production methods are appropriate are shown in the right-most six columns of Table 19.1. The abbreviations in Table 19.1 refer to different instances of the generic data production methods. The specific details of each method is described in Table 19.2.

The range of data production methods enables us to check the internal consistency of the data, for purposes of triangulation. Patton affirms that triangulation is an “important way to strengthen a study design” (Patton, 1987, p.187). In this study a variety of data sources have been used to answer the posed evaluation questions for instance, in order to gather information on how easy it was for the students to use technology the following data production methods were used:

Table 19.1. Evaluation phases of Interactive Stories model as represented in the LCE framework (Alexander & Hedberg, 1994; Bain 1999). See Table 19.2 for explanation of terms.

Phase	Focus	Questions	Data Production Methods					
			Assessment	Documentation	Staff Focus Group	Student Interview	Journals	Observation
Analysis and Design	Curriculum analysis	1. What learning outcomes are appropriate? What do students need to be learning?			F1			
	Teaching-for-learning analysis & Specification of innovation	2. How will the learning outcomes be achieved through the use of the Interactive Stories approach? 3. What are the assessment processes and marking criteria? 4. What is a good script and why? 5. What are the pro's and con's of the Interactive Stories approach? 6. What evidence from the 1999 trial can be used to improve the Interactive Stories approach	A		F1 F1 & F2 F1 & F2 F1 F2			
Development	Formative monitoring of learning environment Formative monitoring of learning process	7. How easy is it for the students to use the technology?				I2	TJ & SJ	TO & MO
		8. How does lecturer input throughout the process influence the students' work?			F2	I2	TJ & SJ	MO
Implementation	Summative evaluation of learning process	9. How are dialogues constructed?		SP		I1 & I2	SJ	
		10. How much (and what sort of) team work and reflection occurs?		VF	F2	I2	TJ & SJ	TO & MO
	Summative evaluation of learning outcome	11. How well do students meet the learning objectives?	A	SP VF	F2			TO & MO
12. What are the educational benefits of the Interactive Stories approach?		A	VF SP	F2	I2		TO & MO	
	Summative evaluation of innovation appropriateness	13. Do the educational benefits match the workload of the students?			F2	I2	TJ & SJ	TO & MO
		14. Could the Interactive Stories approach be improved and how?			F2	I2	TJ & SJ	TO & MO
Institutionalisation	Maintenance evaluation	15. Can this model be used equally well across a variety of language units?			F2			
		16. What factors determine the sustainability of the "interactive conversations" model?			F2			

Table 19.2. Description of the specific sources of data used in this study.

<i>TJ</i>	<i>Teacher Journals</i>	Teaching staff kept journals on their observations of their students, as well as on their own personal experiences in conducting the course. Participants were free to comment on any aspect of the project, both negative and positive (see Appendix 19.4).
<i>SJ</i>	<i>Student Journals</i>	Students kept journals on their experiences in undertaking the project. Participants were free to comment on any aspect of the project, both negative and positive (see Appendix 19.4).
<i>I1</i>	<i>First Round Student Interviews</i>	First round interviews were carried out by the primary evaluator on an individual basis with one student at a time at the beginning of the project. The questions were open-ended (see Appendix 19.3), and intended to find out general attitudes towards the Interactive Stories approach.
<i>I2</i>	<i>Second Round Student Interviews</i>	A second round of interviews was carried out by both the primary and the secondary evaluators with groups of three students after the completion of the project. The questions were open-ended (see Appendix 19.3). The students were grouped so that they were from different languages and levels. The second interview examined in depth students' opinions about the Interactive Stories approach and what they learnt from the experience.
<i>MO</i>	<i>Class Observation</i>	Teachers and students were observed during class hours by either of the MMC project coordinators. The observers acted passively, unless they were asked to provide technical support by the teacher, in which case they became participants.
<i>TO</i>	<i>Teacher Observation</i>	Teachers also observed student interaction and were asked to make notes of any points of interest.
<i>VF</i>	<i>Video Footage</i>	The hours of raw video footage collected by students while they were filming were analysed by MMC staff, who made notes on: interactions between students and teachers, experiences with the software, problems encountered and the teaching approach taken.
<i>SP</i>	<i>Student Projects</i>	The final student projects were used to gather impressions on creativity and language in context.
<i>A</i>	<i>Assessment</i>	The final assessment marks were used to determine how well the students met the learning objectives (see Appendix 19.5).
<i>F1</i>	<i>First Round Focus Group</i>	Staff focus groups were held at the beginning of the semester, initially to outline the learning outcomes and discuss teaching methodologies. The discussion for this session centred upon formative development of: teaching methods, evaluation methods and assessment procedures. Teaching staff were encouraged to share their ideas but make their own choices as to the best way to deliver the course to their students.
<i>F2</i>	<i>Second Round Focus Group</i>	Staff focus groups were again held at the end of the semester to reflect on the processes and outcomes. The focus of discussion in this session was on identifying the learning outcomes achieved by the students, and examining these in relation to the experiences documented by all participants.

- Student interviews and student journals assisted in gathering student perceptions.
- Staff kept journals and participated in discussion the focus groups.
- Students were also observed in action during class sessions and on the video footage they took of themselves for their projects.

### 2.3 Project Participants

The project group consisted of two project coordinators, the evaluation mentor, the teaching staff, and a selected sample of students.

The project coordinators were Fardon (secondary evaluator) and Valdrighi (primary evaluator). Fardon was primarily involved with

monitoring and designing the overall project, while Valdrighi was responsible for the evaluation design and conducting data collection and analysis. Central to the evaluation component of the project was the evaluation mentor (Phillips), who provided guidance throughout the entire evaluation process from the design phase to the final stage of writing the report.

The teaching staff consisted of four language teachers, all of whom were the respective unit coordinators of the language units in which the Interactive Stories project was being conducted. The languages and levels of study are shown in Table 19.3.

*Table 19.3. Characteristics of the areas in which Interactive Stories was being taught. There are two levels of study, depending on whether students have had prior experience in the language prior to enrolling.*

Subject	Year of Study	Level of Study
Chinese	1 <sup>st</sup> year	Beginners
French	3 <sup>rd</sup> year	Advanced
German	1 <sup>st</sup> year 2 <sup>nd</sup> year	Advanced Intermediate
Italian	2 <sup>nd</sup> year 3 <sup>rd</sup> year	Advanced Intermediate

The teaching staff participated in the focus groups, kept journals of their observations as well as helping with some of the administrative tasks such as handling the ethics approval forms and following up the students for interviews. They also contributed to the planning of future implementations of Interactive Stories.

A group of twelve students were chosen to form a study sample: three students were selected from each of the four language units. The selection of students was based on a sample of students of different gender, age, background, and experience. Each of these students participated in the interviews and kept journals throughout the project duration. Ten of the students were female and two were male. In the total population of 100 students who worked on Interactive Stories projects, only 15% were male, as language units are usually female-dominated. The project leaders felt that two male students was representative of the sample. Four of the sample population, including one male, were mature age students, who had not moved into their present Arts degree directly from High School.

As well as contact with the class teachers, the students in the study sample had significant contact with the evaluators who led the interview sessions, and acted as a first call for support. The primary evaluator had most contact with the study sample students, and observed and made notes about the students' experiences and behaviour.

All students gave signed, written consent for their material and information to be used for evaluation and publication purposes, in accordance with the UWA code of ethics guidelines (<http://www.acs.uwa.edu.au/hrs/policy/part01/3.htm>). A copy of the ethics approval form is included in Appendix 19.2.

## 2.4 Data Analysis

*Focus in analysing qualitative evaluation data comes from the questions generated at the very beginning of the evaluation process. (Patton, 1987, p.145)*

An inductive cross-case analysis was applied to this study (Patton, 1990). The data collected was classified into predetermined categories generated by the evaluators. In this case, the categories were dictated by the questions listed in the LCE framework in Table 19.1. The first stage of sorting the data into patterns according to the outlined themes was undertaken by the primary evaluator, while the second stage of reviewing the resulting classification scheme was undertaken by the secondary evaluator.

All transcriptions were colour-coded according to the data collection method used to obtain that piece of information: staff focus group discussions as yellow, student interviews as orange, observation notes as pink, staff journals as dark blue and student journals as light blue. The colour coding helped the evaluators to determine which data collection methods were used for answering each question, as well as making it easier to consolidate the outcomes with the data collection processes outlined in the original evaluation framework. The volume of the transcribed data allows only excerpts to be listed in Appendix 19.6. The transcriptions are coded with a number for reference to quotations.

For reasons of anonymity the names of people in quotations appear as the letter X and pronouns which refer to gender such as 'she' and 'he' have been replaced by the neuter term 'they'.

### 3. Results

#### 3.1 Analysis and Design

The Analysis and Design evaluation provides baseline information to inform the other aspects of the evaluation study. It also serves to define the context in which the evaluation study takes place.

The Interactive Stories approach has been described in §1.1. This section expands on the IS approach, particularly in terms of the intentions teachers had in utilising the approach. The learning outcomes that students were expected to achieve are also identified. Data was obtained from documentation about the IS approach, and from two focus group interviews with MMC staff and the four language teachers at the beginning and end of semester.

##### 3.1.1 Curriculum Analysis

The Interactive Stories approach addresses all four macro learning areas in the one project: reading, writing, speaking and listening. Students would be actively involved in writing dialogues, memorising and performing scripts, as well as directing and editing their multimedia projects.

Participants in the focus group discussed the learning outcomes that language learners should achieve through the use of the Interactive Stories approach. The language teachers stressed that the learning outcomes should be achievable for students at different language levels. The following four learning outcomes were identified:

- The application of language skills;
- To place language, and the ambience/environment of the language, in context;
- Creative and innovative use of language skills;
- Creative and innovative use of multimedia skills.

The consensus amongst focus group participants was that, for students to meet these outcomes, they would have to be aware of the outcomes from the very beginning of the programme. Therefore, teaching staff were urged to communicate the outcomes in a manner most appropriate to their students and their level.

##### 3.1.2 Teaching-for-Learning Analysis & Specification of Innovation

###### How will the learning outcomes be achieved?

The Interactive Stories approach was identified as providing a new type of learning activity. Students were now engaging in collaborative and creative project work, instead of using traditional, individual methods of language learning, such as weekly translations, grammar exercises and essays. The traditional methods are still employed, but the activities undertaken in the Interactive Stories model were new to most students.

The staff focus group participants agreed that the desired learning outcomes were likely to be achieved through the IS approach, because:

- it covers all four major areas of language learning— reading, writing, speaking and listening;
- students are required to work collaboratively in groups;
- students are required to revisit the language at various stages of their projects: in scripting, script editing, filming and editing the film, entering the data into the multimedia module and adding final touches;
- scaffolding of student learning is built into the process, with initial scripts being scrutinised closely by the language teachers, corrected for grammatical accuracy, and suggestions made for improving the presentation of language in context;
- students gain skills in multimedia that are vocationally practical;
- an emphasis was placed on creativity and producing a project which had socio-historical relevance, thereby making appropriate use of language in context.

In addition, focus group participants agreed that students needed flexibility in learning, and variety in both teaching methods and tasks to be completed. The staff felt strongly that students needed to be learning skills which they could apply in the real world, but they also needed to enjoy themselves.

The IS approach was designed for students to work in pairs, or threes, where class numbers were not even. This decision was made because teaching staff thought that the workload would be too much for individual students, and because of concerns that some

students might have weak IT literacy skills. Teamwork skills were also seen as a valuable attribute of an Arts graduate, but this was not common to the students' experience.

The use of a variety of media in the IS approach allowed students to create a virtual environment that, in turn, generated the linguistic and cultural features of the language's environment in ways not otherwise possible. As described in §1.1, students create interactive scenarios whereby the user can carry on a virtual conversation with someone in a movie screen by clicking on one of a number of written text options. For example, one group of students worked on a project about the Italian painter Caravaggio. In one scene, the students created a film of a prostitute who frequented Caravaggio's circle of acquaintances. The actress was dressed in period costume, she was filmed outdoors in front of a pond in the oldest part of the UWA campus, she was in a seductive pose and she used terms in her speech which were reflective of the time period she belonged to. For example, she speaks of "scudi" instead of "lira" to refer to the Italian currency of the time. In another project, the students created a simulation of a ghost, by using a special 'fade in and fade out' effect in iMovie.

### Assessment Criteria

The staff focus group agreed to develop an assessment checklist which addressed the learning outcomes listed in §3.1.1. The assessment checklist was to be provided to students with explanations and examples, so that they knew what was expected of them. Most teaching staff used the same style of assessment checklist, but there were some variations between classes. For example, in order to assess the correct use of language in context, one unit coordinator allocated a mark for the filmed setting. Another unit taught novice, first year students. These students could not be expected to portray language in context, because of the limits of their ability in the target language, nor were they able to produce a lengthy script.

Students were provided with assessment checklists and criteria at the beginning of the semester, along with the other student handouts for the course. Two assessment sheets (see example in Appendix 19.5) were handed out: the first is returned to the student after the marking of the script by the teacher;

and the second checklist is returned at the completion of the project.

### What is a good script?

In order to come up with the list of items to assess the scripts, the focus group discussed what constituted a 'good' script. A script consists of a map of the flow of conversation, forming a tree structure, where the branches are linked together by numbers.

A segment of a script is shown in Figure 19.3, with the full script displayed in Appendix 19.1. Each number on the tree at the left refers to a sentence or utterance on the right. Structured in this way, it is easy to view the overall flow of the script, and its scope. It is also relatively easy for the reader to follow one strand of conversation without getting lost in a maze of unrelated sentences belonging to other strands of conversation.

The following characteristics of an 'ideal' script were identified by the focus group:

- grammatical correctness;
- appropriate use of registers of language and idiomatic expression;
- interest and variety;
- logical flow, which is appropriate to natural conversation or the chosen scenario;
- of appropriate length criteria, relative to the various levels of the students, ranging from beginners to intermediate and advanced.

### Evidence from 1999

Focus group participants discussed the experiences with the trial of Interactive Stories which had taken place in a French unit in the previous year (Jacomard, 2001). The students in 1999 demonstrated interest in the trial run of the project, and this encouraged all four language teachers to use Interactive Stories in their own courses in 2000.

The MMC coordinators and the unit coordinator of French shared their experiences with the others in the group, and identified the following characteristics of the trial of Interactive Stories in 1999:

- there was a perceived lack of creativity in the student projects;
- there were problems with communicating language in context;
- technical problems were minimal because the training was provided by MMC staff;

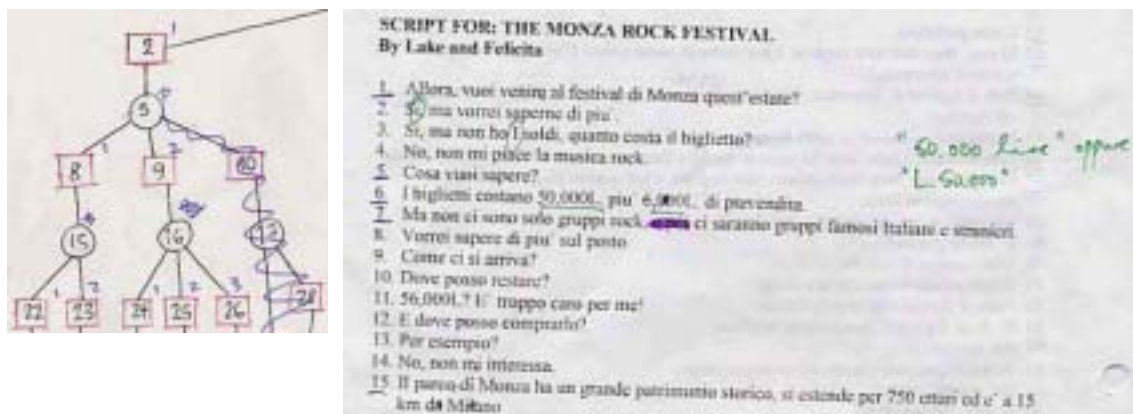


Figure 19.3. An example script.

- detailed handouts will be needed in 2000, because the class teachers will be teaching all of the course by themselves.

Based on the perceptions of the trial participants, the focus group discussed a number of issues that appeared as problem areas.

### Pro's and Con's of the Interactive Stories approach

The staff focus group questioned what the students should actually be learning and whether they would be learning anything relevant at all using this new approach. Concerns were expressed about the availability and reliability of the resources and technology to cater for the four different language units participating in IS. Further to this, the students were at varying stages of technological aptitude, so that students' computer and multimedia skills could range from novice to expert. Due to this factor, the IS approach would have to provide handouts and guidelines to accommodate for a large variance in students' technical skills. Handouts would also have to take into account the fact that comprehensive user manuals did not exist for the software the students would be using.

A potential technical problem was highlighted by MMC staff, in that the Faculty computing support staff might implement updates of software (including changes to system software) during the running of the project. This might affect the smooth running of the project due to introduced incompatibilities of software with hardware.

## 3.2 Development

The development evaluation focussed on formative evaluation of both the learning environment (the IS model) and the learning process (what were students doing?), in order to answer the specific questions in Table 19.1. A range of data sources were used (also shown in Table 19.1), including the second staff focus group, student interviews, journals and observations.

### 3.2.1 Formative Monitoring of the Learning Environment

#### Ease of use of the technology

The majority of students stated that they had experienced problems in using the technology and they all found this unnecessarily time-consuming:

*We lost a couple of hours trying to get things to work and we found that we would lose half of the morning before we got to the point of asking.*

However, not all of the students expressed frustration at the difficulties encountered and, even though they may have been faced with challenges, they didn't feel it was an obstacle:

*I found that once you got the hang of it – it was easy – the editing, creating nodes and linking them – so it was very good in terms of thinking that something was difficult and overwhelming and then thinking, "Hey, that's cool! I've worked it out!" So I found it was fantastic from this point of view. I'm not very computer literate either.*

A great deal of technical assistance was required by the students, especially during the

editing stages of the project. One staff member had been assigned specifically to support students, but that person could not assist all the students on their own, and needed help from both of the MMC observers.

*I did nothing else today except lend StoryTime technical support. X was the same but managed to [do some other work].*

### 3.2.2 Formative Monitoring of Learning Process

The lessons of 1999 were incorporated in the way Interactive Stories was offered in 2000. However, the formative evaluation of the project in 2000 identified a range of areas that needed improvement.

#### **Influence of lecturer input**

Observation of class teachers indicated that they tended to use a show-and-tell technique in their classes. They would explain a concept, demonstrate it and then get the students to do it themselves, on their own or in pairs. This was often done by working through the instructions in the handouts.

Teaching staff commented that they regularly attempted to draw the attention of the students to important aspects of the project:

*Not in all groups, but some groups took care to make sure that they were working on their pronunciation. But I had said that the person filming had to help the person speaking – not only in delivery, but in the way they were delivering the language.*

However, the class observer often noted that some students were either not devoting full attention to the class teacher (hence they could have missed out on some important bits of information) or they were just confused:

*Observer in first session: Students at the back of lab not paying attention to technical explanations – restless. Some students reading other things.*

*Observer of same class in last session: X and X turn around to me in their presentation to ask me, an observer, whether they are getting marks for their presentation or not.*

Students in one class expected the teacher to be more technically competent:

*It would be good if the teacher had more knowledge about it themself. They would touch something and then everything would be deleted. The teacher had some general knowledge but when it came to problems they didn't.*

This was corroborated by MMC staff observations that teaching staff sometimes did not fully understand nor explain all technical procedures, especially important ones, asking students to contact the MMC staff for support. There was a need for teaching staff to be technically proficient in the use of Storytime, iMovie and Macintosh operating system software before using the IS approach in their course.

*MMC Observer: Teacher X can't get camera to download onto iMovie. Then X says, "When you do it, it will work for you." He doesn't ask me for help and I won't interfere. It is the end of the lesson so X tells everyone to read their notes.*

The technical proficiency of the teachers contributed the amount of support which had to be administered by MMC staff outside of class time.

The volume of technical support required from both MMC staff and language teachers was felt to be excessive. A need was identified for teaching staff and technical staff to re-negotiate support mechanisms as neither group was happy with the large amount of technical support they had to contribute to the project.

An important factor contributing to the high support load was the effectiveness of the instructions provided to students. It was clear from all participants that these needed to be improved to support both staff and students with low levels of IT skills, and to alleviate the support requests.

Students asked to be provided with ideas and more instructions to aid their creativity:

*I still would have liked to have known what a computer can do because I don't know anything about that. There should be a board with all sheets on things you can do – sound effects and things like that.*

Teaching and technical staff agreed to work together to review and rewrite instructional handouts available to students.

*Teacher: I think we might re-write the manual together and I have notes about things on the manual.*

Only one of the two unit coordinators who participated in the semester one, 2001 round of projects assisted with compiling new handouts. The other teacher was happy to use the same handouts as the previous year.

In a related manner, there were weaknesses in the assessment guidelines and check-lists provided to students. This was especially relevant to two of the classes, where students reported that they had not understood what was expected of them by the terms the teacher had used on the assessment description sheet:

*Student: We didn't know whether we were being assessed on our presentation or not. We still don't know.*

*Student: We had a comprehensive breakdown but some of them were broad categories and I feel that there was a lot of work that was very good and some that was not very good. So if you were good, you might get eight out of ten, and if you were not you might get three or four. It was a little bit difficult to take what you had and fit it into the scale of things. We were surprised to get a couple of threes where we misunderstood because we were not shown what an effective dialogue would have been for those categories. Justifiably we misunderstood because it wasn't very well outlined.*

There was a further need for reminders to students throughout the semester about deadlines, etc.

*Teacher: It's a balance between leaving up to the student's own responsibility and not setting them up to fail. Because if you've never done this project before, and my students certainly never had... with the old system they just had weekly assignments... for students who are used to the fortnightly routine you can set them up to fail.*

*Teacher: Interesting... one student said that we should force them to do the work because they're too lazy to do it straight away.*

The shortcomings identified so far are concerned with administrative aspects of the Interactive Stories approach, and can be largely rectified through documentation and training.

On the other hand, one language issue was identified by students and staff. That was a lack of opportunity to speak in the target language. Teaching staff agreed to incorporate a greater amount of speech work in their classes, in two ways. These were to use the language more frequently in class and incorporate it into class instructions (especially for advanced students); and by asking students to present critical-reflective comments in the target language, either in front of their classmates, or in a journal throughout the course of the semester. As one teacher commented:

*Students are getting carried away with the technology. Not much emphasis on German dialogue. Need to work on putting more emphasis on use of language in class.*

Both of the unit coordinators who have undertaken this project in 2001 have been using more of the target speech in class.

### 3.3 Implementation

The implementation evaluation focussed on summative evaluation of learning - both the learning process (what were students doing?) and the learning outcomes (what did the students learn?). In addition, the appropriateness of the IS approach was investigated. The range of data sources used to investigate these issues are shown in Table 19.1. They include staff focus group interviews, student interviews, journals, observations, assessment results and the student projects themselves.

#### 3.3.1 Summative Evaluation of the Learning Process

Student interviews and observation were used to determine the processes the students went through in producing their projects.

### How are dialogues constructed?

There was a difference in the way that students at different levels constructed their scripts. All three beginners to the language who were interviewed said that they had consulted textbooks for help with grammar when constructing dialogues. They also designed and wrote their scripts in English instead of the target language.

*Beginner: We were limited to what we know but it was time consuming to go through the dictionary and look up words that we were not familiar with. We thought it would be too simple to copy a dialogue out of a text. We'd work out what we wanted to say and then translate it.*

The more advanced students, on the other hand, thought and wrote in the target language:

*Advanced Student A: Thought and written in Italian!*

*Advanced Student B: Also, composed in Italian and French.*

In both cases, students were not simply copying dialogues from text books, although the beginners had more need to consult texts. Written dialogues in regular text books are not linear and could not be directly copied into their project. Students found that they had to be creative in designing their scripts, because the IS approach requires non-linear dialogues (see Figure 19.3). Students had to think of the multiple paths a dialogue could take.

Observations of teachers in the introductory lessons revealed that they were often using the phrase “be creative”. However, it appears that student creativity was constrained by the way in which IS was presented to the students. The implicit structure of the IS approach suggests a dialogue construct. In developing their scripts, students felt compelled to use a conversational tone and a question-answer style, rather than a narrative style:

*Student A: We were trying to construct a conversation but every second sentence had to be a question.*

*Student B: We felt compelled to put questions in there as well.*

However, it is possible to use IS in more sophisticated ways. In reality, not everyone converses in a question-answer type manner. The students who felt compelled to use this

style of interaction in their scripts found it difficult to write dialogues that seemed natural:

*Student: It was hard to come up with options for linking information. You had to come up with a question that you knew would work well.*

The example of IS given to students in their training session was of a boutique, where the customer enters a virtual boutique to find out what the store has to offer or to purchase some clothes. One would expect to find a great deal of question and answer type interaction in such a situation, such as: How much does this cost? Do you have this item in blue? What size would you like to try first? The use of this example tended to constrain students' imagination.

One alternative is to not use an example in the training. However, the formative evaluation reported in §3.2.1 indicated that students already have difficulty in understanding IS, this is likely to be more difficult without a concrete example. The second alternative is to provide different examples of Interactive Stories, using both narrative and dialogue techniques. In this way, students will be aware of the various stylistic options, and can be potentially more creative. Teaching staff can also talk to the students about the linguistic implications of using different stylistic approaches to a project.

### Teamwork Issues

Most students interviewed reported that they worked well with their partners, regardless of whether they carried out all the tasks together, divided up the tasks, or were in groups of two or three:

*Student: It does help [working with a partner] but... and... there are always things that one person doesn't know that the other does.*

All students but two reported that they had successfully worked in unison with their partners to produce the script for their dialogue:

*Two clear paths. Each person in the pair took one path each and constructed the dialogue for that.*

There were two exceptions to the general atmosphere of unity among the classes. In the first instance, one of the pair was not interested in the project (for the marks it was worth) and

did not care to participate; while in the second instance, a student refused to let their partner contribute at all as she feared the other person would do a bad job and she wouldn't get the high mark for the project that she wanted.

Nevertheless, there was a general consensus of respect for the opinions of the other people in the group:

*Student: We always talked about it even if there was a stronger person in the group.*

*Student: We made sure that all three of us agreed.*

Students also grappled with the issue of expressing constructive criticism:

*Student: Often, with the pronunciation you don't know the person that well enough. You don't feel comfortable saying to that person, "Stop you're wrong."*

*Teacher: What they do have to be able to do is express constructive criticism of each other, particularly in the film stage. They don't want to criticise their partner but the consequence of that is that if they don't it will be included as part of the final mark that they get.*

Both students and staff reported that the project circumstances brought all the participants closer together:

*Student: It drew the class closer together and you talk more with them and I find for language that's really important. So the fact that we share troubles means we bond.*

*Staff: A number of students, quite unsolicited, had said to me how much they thought this project had brought the class together.*

Overall, staff identified 'group-work' as a benefit of the programme:

*Some students hate group work – particularly high achievers. Particularly one student wouldn't allow the other students to do any work because they wouldn't get a high distinction. Yeah... a real problem but... and again, if I had been aware of that earlier, I would have been able to step in and work with that group. Yet they are so aware that one of the things that will always*

*come up when they apply for a job is being able to work with other people in a team.*

### Other Learning Process Issues

When they were interviewed, half of the students did not perceive that any language learning or development had taken place. For example:

*I think whatever level students were before the project they would be just the same at the end of the project.*

Teaching staff who participated in the focus group noted that students in general were expressing negative thoughts on the applicability of IS to language learning:

*Teacher: They don't see that in looking at themselves they can benefit simply from that. Because they had to spend so much time on editing that just meant that that was all that was in their minds. Therefore the whole project had nothing to do with language learning. I was able to talk to them about how in the previous semester that imbalance had not been there and I think most of them had accepted that there were some elements of language learning and at least one group had been able to see the other benefits or skills they could gain.*

Other staff agreed with this view, that the technical problems experienced by the students was so overwhelming that they were not focussed on the language learning that was taking place.

However, other data sources indicate that the students were indeed applying their knowledge of language structures and learning from each other. Most students contradicted themselves either in their descriptions of interactions with their partners, or as they captured each other on video while filming, often in heavy debate over language structures:

*Student interview: I picked up some bits from my partners. It was actually really good because I learnt German at school and then I went and studied there so I had a good grasp of the grammar because I learnt the language. The other two spent two to four years of their lives living there and just learning it as children so they*

*could speak from feel and I could say, "Is this grammatical bit right, or that?" and they would say, "That." I'd be looking at the grammar and they'd be looking just from feel. So I would learn from them and them from me. That was pretty good!*

*Student interview: We discussed a fair bit with each other in German.*

*From out-takes of video footage:  
Student being filmed: Shouldn't we be using 'Sie' though?  
Student behind the camera: Nah, you'd be using 'Du'.*

On the other hand, approximately half of the students believed that there were some benefits to language learning that this new experience provided. One advanced student commented:

*I think it did a lot for our language learning because we wrote the script and the person spoke on the camera... I mean, yeah, we didn't learn anything but we put into practice everything we had learnt over the past few years. I think it was good to do that because at this stage we've learnt a lot and we need to be able to put it into practice to build our confidence up using the language. With the specialised vocab, I learnt quite a bit from X because she went to school in Italy.*

The students who saw benefits in the exercise demonstrated mature insight and understanding of the different stages of language learning:

*Well, we can already read and do other things but there's the next level to it. You're finding useful information and there's a whole range of vocab associated with it and a whole range of expressions, grammar and registers. By the time you get to third year French you are really exploring more than just the everyday fields of language.*

### 3.3.2 Summative Evaluation of Learning Outcome

The learning outcomes identified in §3.1.1 which students were expected to attain were:

- The application of language skills;

- To place language, and the ambience/environment of the language, in context;
- Creative and innovative use of language skills;
- Creative and innovative use of multimedia skills.

Each of these is discussed in more detail below.

#### Language Skills

Table 19.4 summarises evidence of the range of ways that language skills are enhanced through the Interactive Stories projects. The second column contains evidence from students, which is reinforced by staff observations in column 3.

The Interactive Stories model clearly enables specific linguistic skills of individual students to be enhanced.

The students' language skills were also assessed in terms of their performance in their projects, according to the assessment criteria specified for the project. As stated in §3.1.2, different assessment criteria were used in each of the four language classes (one example is shown in Appendix 19.5). Detailed assessment results are available for both the French (3<sup>rd</sup> year) and German (1<sup>st</sup> and 2<sup>nd</sup> year) classes.

In the French class, 45 marks were allocated for language skill, in written accuracy, complexity and register of language; and oral pronunciation and intonation. The average mark was 37 out of 45 for this class. Overall, the scores of the group of advanced French students ranged from 79 to 87 percent.

The German class allocated 30 marks for language skill, in pronunciation, clarity of speech and rhythmic patterns. The average linguistic mark was 24 out of 30 for this class. Overall, the scores of the group of intermediate German students ranged from 67 to 84 percent.

In both classes, the marks were relatively evenly spread over the different criteria, indicating that the students did equally well in each language criterion. From the results, it is evident that the teachers in both the German and French classes found that the students performed very well. In the Italian class, for which only aggregated marks are available,

Table 19.4. Student and staff perceptions of language skills learnt using Interactive Stories.

Skills	Student feedback	Staff Observations
Speech: pronunciation, presentation, delivery and intonation.	The only scene we had a problem with was a long speech, the last word 'raccapriccianti'. The more X tried, the more they tripped up. We left it and came back to it last – got it on take six.	Not in all groups but some groups took care to make sure that they were working on their pronunciation.
Writing	I think it did a lot for our language learning because we wrote the script and the person spoke on the camera...	They paid a lot of attention to the script they handed out to me. Writing skills, finding the right register of language and expanding on semantic skills.
Registers of language and forms of address	Which skills are the focus depends on your choice of topic. For example, the Italian was more familiar language use and the French one was a more formal interview.	
Semantic and idiomatic expression expansion	You're finding useful information and there's a whole range of vocab associated with it and a whole range of expressions, grammar and registers.	
Conversational structures	I think for Chinese, it was good to be able to speak freely beyond the class. Even if it was quite short it did help. It's good to speak and listen – especially to listen. You have to read as well.	Some of them said that because it was an interactive conversation, they had to adopt a conversational tone and they learnt more informal structures and language than they would normally pay attention to in class.
Reading and listening to language	Student X [when asked how language had improved] By listening. By reading. Listening skills.	My students said that researching the culture you had to look up sources that were in the language.
Asking questions	We felt compelled to put questions in there as well.	I was surprised to see how many students didn't know how to ask questions in French.

scores ranged between 67 and 89, with an average of 80.

### Using Language in Context

Powerful evidence has already been presented in §3.1.2, in the example on Caravaggio, about the way that language is presented in context in the Interactive Stories approach. This was not an isolated example.

Table 19.5 provides other evidence, with examples from both the student and staff perspective.

In the intermediate German class, the average performance associated with language in context was 22 out of a possible 30, where the criteria were cultural aspects, role playing and choice of location/set. Likewise, for the advanced French class, all students scored 10 out of 10 for the contextual criteria: relevance to unit and role playing.

Teachers of the advanced classes agreed that students went to particular effort to pay

attention to the correct use of language, including language in context:

*They paid a lot of attention to the script they handed out to me. Writing skills, finding the right register of language and expanding on semantic skills.*

### Creativity in Language Skills

Creative thought was applied in a range of ways to the dialogues and scripts in order to embellish the atmosphere of the stories. The Italian Caravaggio example has already been discussed in §3.1.2. German students also used creativity in their projects:

*We tried to speak a strong Austrian-German accent like the guys on Cool Runnings in our Jamaican pavilion, and we also tried to liven things up like when talking to Hitler.*

Other aspects of creativity in language skills can be expressed in terms of researching, logic and presentation. Evidence supporting these aspects is shown in Table 19.6, with examples from students and staff.

Table 19.5. Student and staff perceptions of using language in context with Interactive Stories

Skills	Student feedback	Staff Observations
Placing language in context of society and culture	One of us went to Dr. X to ask, “How do you say this if you’re a sleazy car person?”	At the written stage they had to hand in the script they both researched the cultural aspect of their topic but in a lot of cases, research in terms of the actual language they used came into it. For example, in Oktoberfest they watched expressions for saying ‘cheers’ and aspects of Bavarian dialect – what is the Bavarian word for sausage or beer. On some of the out-takes you hear a lot of them discussing the use of formal or informal form of address.
Public speaking	I think it was good that we had to present something in German and also having to speak on camera and think on your feet a bit more instead of writing it down.	Speaking in front of a camera. That’s something that some people are terrified of doing.

Table 19.6. Student and staff perceptions of using creativity in language skills with Interactive Stories.

Skills	Student feedback	Staff Observations
Researching	We did a bit of research on the net and from books. For Italian we had done a bit about the risorgimento in class and so we used a lot of that.	My students said that researching the culture you had to look up sources that were in the language.
Logic	It was a little difficult to organise the script for Italian... that just seemed like it would never end.	They have to understand the mechanics of a dialogue which they can’t possibly understand from classes. Here’s a scenario and let’s talk about it. They only do it once they do it in a fairly spontaneous fashion and they don’t actually have to think about does this make sense from this point and where do I go from this point because there are six possible questions I could ask at this point... they have to look at the way in which conversations actually can go in different directions and how you can get to the same point via different paths. I think it’s something that they don’t also really realise when they’re doing it.
Presentation	When you see what other people are doing you think, “Yeah, next time, I’m gonna do that!”	Students came up with many creative introductions or conclusions to their stories. A lot of effort gone into costumes, effects, etc.

In terms of assessment results, German students averaged 23 out of 30 for the criteria: research on topic, creativity in dialogue and presentation. At the same time, the French students averaged 15 out of 20 for breadth/depth of research and flow/logic of situation.

### Creativity and Multimedia

The fourth learning objective was about creative and innovative use of multimedia skills. The technical problems that students experienced have been discussed in §3.2.1. Notwithstanding, all students interviewed, except for one, experienced improvement in

their ability to use technology and in their confidence. For example:

*Student: I thought it was good. I've learnt a lot computer skills-wise. I used to be computer phobic but now it's okay. I felt it was like an ego boost. I got this thing to work. Yay!*

*Student: I came in and finished pasting the remaining clips in. It was really great as I had to complete each step of the task all by myself: downloading, editing, exporting, linking. Etc. I feel confident in the equipment now.*

*Observer: One group volunteered to come up first: the teacher showed them how to use the camera and shot list but not the entire class. Students are laughing and having a good time. All students asked to come up. First student comments, "It's easy."*

One student was inspired to further apply the multimedia skills they acquired:

*Student: X went out and bought a digital camera. X teaches Italian in school and they've got all these great ideas.*

Overall, the projects produced by the students demonstrate that they made use of technical features creatively, in order to enhance the overall presentation of their ideas. In one German project, the students introduced their topic by filming a scene from outerspace on their television screen. They superimposed scrolling credits in German onto this footage using iMovie, as a means of introducing the concept of their story. The authors of this project commented that they were trying to get the same effect as the first Star Wars movie.

Initially, they didn't have the equipment, time or knowledge to digitise the section of video that they wanted from Star Wars itself, so the students used knowledge they had obtained in class to find a creative solution that worked, without asking support staff for help. Other projects also used technical features such as video, audio, pop-up balloons and even changes of type-font to add to the ambience of their projects.

The German class had a specific assessment criterion for creativity in multimedia, and the class averaged 7 out of 10 for this criterion.

### **Educational Benefits**

From the evidence presented, from a range of mutually supportive sources, it is valid to claim that the anticipated learning outcomes were achieved by students. The basic language skills may have been achieved through the standard language learning curriculum, but no evidence is available to support this contention.

It is clear that students participating in Interactive Stories projects were able to place their application of language in an authentic context, and were able to creatively use both language and multimedia. It is less likely that these skills could be learnt through a traditional curriculum, unless they were explicitly introduced into learning activities.

Some students felt that they were not learning language through participation in Interactive Stories. Teachers of all classes reported times when students challenged them with regards to the benefits of the project:

*Teacher: X (mature age) was quite aggressive about "wasting time on something that has nothing to do with language learning." I went through the benefits again, such as understanding the mechanics of dialogue, speaking practice, etc.*

[...]

the general feeling was that there was too much of the project that was not at all related to language acquisition. I talked to them about the value of an arts degree in teaching generalist skills, and that just as learning a foreign language gives them the edge over many other arts students, acquiring multimedia skills is another thing they can say they have done.

However, the evidence suggests that students were learning language skills, but the students did not notice this, because they were engaging with the complexities of the project work. The language learning was an implicit outcome of the authentic task.

Students also gained skills in groupwork and collaboration. Interestingly, the students found that the difficulties involved in creating their

projects drew the class together into a learning community. This factor could have acted as a motivator to encourage students to work harder in this class, or the course as a whole.

The students also said they would recommend the project to future students regardless of any of the difficulties they encountered along the way.

*I'd recommend it. I think it was fun as much as it was annoying.*

In addition to this, most students agreed that they had enjoyed the project, were happy to have taken part and would do it again if given the chance in future:

*I'd do it again definitely. Most of the people were saying I'd like to do it again. You can show this is what I did and be proud of it even if you never use you language in your career. There is pride in wanting to do it properly.*

*I'm very pleased with having done the projects and I hope to include them in my CV. Thank you, I enjoyed doing the project and I believe it was very worth while.*

*I enjoyed it. It was well worth doing and it's always good to learn a new skill.*

All teaching staff felt that the project had been successful educationally, and indicated that they would repeat the project in future. The two staff members who did not have to take long service or study leave in the following year (2001) have included the exercise in their intermediate classes.

### 3.3.3 Summative Evaluation of Innovation Appropriateness

#### **Workload**

An initial concern of the project team was that the IS approach would impose too much work on the students for the educational benefits obtained. The previous section summarised the substantial educational benefits achieved, but the question remained as to whether this was worth the effort for the students. Most students interviewed and observed did not have significant concerns about the workload.

However, two students felt that the workload was inappropriate, given the amount of marks allocated.

*What would have made me feel better if the project was worth more of the unit. That would have made me feel better about the effort we were putting in.*

*I actually found it was a lot more effort than what it's worth. Especially since our marking system was funny.*

Overall, workload was not an issue.

## 4. Conclusion

The final three questions in the evaluation matrix shown in Table 19.1 concern themselves with the improvements to, the applicability of and the sustainability of the Interactive Stories approach. Answers to these questions form the Conclusion to this paper, and are derived from data already presented in the preceding sections, supported by relevant evidence not already presented.

### 4.1 Improvements

Section 3.2 highlighted several improvements which could be made to the Interactive Stories approach.

Students were very critical of the teaching support material. They wanted better and clearer instructions about how to use the equipment and software. They also wanted clearer information about what was required of them by their teachers, and how they were to be assessed. In addition, they wanted to be provided with ideas and more instructions to aid their creativity. Students were observed watching the work of other groups to see how they were doing things and asking how they could do something like that as well.

The technical proficiency of all participants in the project was an issue, particularly the technical proficiency of the teaching staff. Teaching staff need to become more proficient in the technology to reduce the support load on technical staff. Improved documentation will assist in this aim.

All parties recognised that significant support needed to be provided by the technical staff, and that it was desirable to minimise this load

by better documentation and training. The resources and support needs of the Interactive Stories approach are discussed further in §4.3.

The findings of this study support those of Lawson and de Matos (2000) who identified training and resources as major barriers to effective integration of technology in teaching.

The other improvement which was identified was to more opportunity for spoken language in the classroom.

The areas of improvement identified by the stakeholders are mainly administrative, relatively simple to achieve, and do not point to any fundamental weakness in the approach.

## 4.2 Applicability

The IS approach may not be suitable for novice language learners. It appeared to the staff focus group that students who were beginners to the language were not gaining as much from the IS exercise as were their more experienced counterparts. The IS approach seemed to lend itself better to the application of language skills and the refining of linguistic competence, than to learning new language structures.

Novices were faced with two very new areas to deal with at the same time – grammar and technology – and this was overwhelming for them. One MMC staff member made the following note after assisting some of the first year students:

*Staff observer: Just spent some time working with two mature age chinese language students. Both were very supportive of the project and were keen to be involved. [...] In addition they commented on the project in relation to its suitability to first year Chinese language. They felt a separate film and written assignments would be more appropriate given the difficulty of writing, typing etc. in Chinese.*

These students did, however, appear to be appreciative of the opportunity to take part in an exercise that was different.

The IS approach seems to be very applicable to intermediate and advanced students. It gives students opportunities to creatively apply

language in an authentic context. In addition, students gain generic skills in negotiation and teamwork, with the added benefit that they ‘publish’ something, which has a motivational effect (Riggenbach, 1988, p.118).

Care must be taken that the IS approach is not overused in language units. IS should continue to be offered in language courses, but only as long as the students are still acquiring ‘new’ and useful skills and not ones with which the majority are familiar.

## 4.3 Sustainability

The Interactive Stories model may not be sustainable in the longer term with the current, or a larger, number of language units. Section 4.1 highlighted the large technical support load arising from deficiencies in documentation and staff skills. There was an obvious need to negotiate resource and support issues between teaching and support staff prior to adoption of Interactive Stories in a given semester. For example, there is only a limited number of available video cameras.

If facilities and resources could not be improved then the projects would have to be offered to fewer groups of students each semester.

*If all possibilities for extra funding have been pursued, then we have to say a maximum of groups per semester and have a rotating basis. Say two units per semester.*

However, effort put into documentation and training may reduce the support load, and enable more projects to be managed.

## 4.4 Major Findings

The major findings of this study have been summarised in Table 19.7. Table 19.7 provides answers to the specific evaluation questions relevant to the Development, Implementation and Institutional evaluation phases of the evaluation framework summarised in Table 19.1.

In conclusion, the evaluators have identified three areas for further research. Firstly, there is a need to investigate assessment procedures and to look at the best ways of communicating these to the students especially when they are faced with new activities. Secondly, the

Table 19.7. Summary of major findings.

How easy is it for the students to use the technology?	<i>Students found it difficult to use the technology, but rose to the challenge.</i>
How does lecturer input throughout the process influence the students' work?	Better documentation and training needs to be provided. Lack of technical skill was an issue.
How are dialogues constructed?	Students had to think non-linearly and creatively to design their scripts. Advanced students worked in the target language
How much (and what sort of) team work and reflection occurs?	The team aspect was largely seen as positive. A sense of community was fostered in the class Little evidence of reflection was found.
How well do students meet the learning objectives?	Skills were attained in the four macro language learning areas (reading, writing, speaking and listening). The language learning was an implicit outcome of the authentic task.
What are the educational benefits of the Interactive Stories approach?	It is clear that students participating in Interactive Stories projects were able to place their application of language in an authentic context, and were able to creatively use both language and multimedia
Do the educational benefits match the workload of the students?	Largely, yes.
Could the Interactive Stories approach be improved and how?	The areas of improvement identified by the stakeholders are mainly administrative, relatively simple to achieve, and do not point to any fundamental weakness in the approach.
Can this model be used equally well across a variety of language units?	The IS approach seems to be very applicable to intermediate and advanced students.
What factors determine the sustainability of the "interactive conversations" model?	The Interactive Stories model may not be sustainable in the longer term without extra resources

MMC would like to extend the application of the IS approach beyond its present use in language teaching for example, in creative writing, philosophy or law. Thirdly, the MMC would like to research other applications, or MindTools (Jonassen, 1996) which allow students to represent their ideas and concepts in a meaningful way. On this final point, consideration should also be given to units with large student enrolments.

## 5. References

Alexander, S., and Hedberg, J. G. (1994). Evaluating technology-based learning: Which model? In K. Beattie, McNaught, C., and Wills, S. (Ed.), Interactive multimedia in university education: designing for change in teaching and learning. Amsterdam: Elsevier Science.

Bain, J. (1999). Introduction to special issue on learning centered evaluation of innovation in higher education. Higher Education Research and Development, 18(2), 165-172.

Barson, J. (1997). Space, time and form in the project-based foreign language classroom. In

R. Debski, et al. (Ed.), Language Learning Through Social Computing (pp. 1-37). Melbourne: ALAA & The Horwood Language Centre.

Debski, R. (1997). Support of creativity and collaboration in the language classroom: A new role for technology. In R. Debski, et al. (Ed.), Language Learning Through Social Computing (pp. 39-65). Melbourne: ALAA & The Horwood Language Centre.

Fardon, M., and Kinder, J. (1997). Partnership in multimedia production: a model that works. In R. Kevill, et al. (Ed.), What works and why: proceedings of ASCILITE 97. (pp. 175-180). Perth: Curtin University.

Fisher, C., et al. (ed.). (1996). Education and technology: Reflections on Computing in Classrooms. Sanfrancisco: Jossey-Bass.

Gambhir, S. K. (1995). Interactiveness in Spoken Language. In V. Gambhir (Ed.), The Teaching and Acquisition of south Asian Languages. (pp. 57-75). Philadelphia: University of Pennsylvania.

Goodsell, A. S., et al. (1992). Collaborative Learning: A Sourcebook for Higher Education. Pennsylvania: National Center on Postsecondary Teaching, Learning, and Assessment.

Jacomard, H. (2001). Interactive conversations for advanced learners of French. In A. Herrmann, and Kulski, M. M. (Ed.), Expanding Horizons in Teaching and Learning. Proceedings of the 10th Annual Teaching Learning Forum, 7-9 February 2001. Perth: Curtin University of Technology.

Jonassen, D. H. (1996). Computers in the Classroom: Mindtools for Critical Thinking. New Jersey: Merrill.

Lawson, R., and de Matos, C. (2000). Information technology skills in the workplace: Implications for Bachelor of Arts degrees. Australian Journal of Educational Technology, 16(2), 87-103.

Levy, M. (1997). Project-based learning for language teachers: Reflecting on the process. In R. Debski, et al. (Ed.), Language Learning Through Social Computing. (pp. 179-199). Melbourne: ALAA & The Horwood Language Centre.

Meskill, C. (1999). Computers as Tools for Sociocollaborative Language Learning. In K. Cameron (Ed.), Computer Assisted Language Learning (CALL) Media Design and Applications. (pp. 141-162): Lisse, Sweta & Zeitlinger.

Patton, M. Q. (1987). How to Use Qualitative Methods in Evaluation. California: Sage.

Patton, M. Q. (1990). Qualitative Evaluation and Research Methods, second edition. California: Sage.

Phillips, R., Bain, J., McNaught, C., Rice, M. and Tripp, D. (2000). Handbook for Learning-centred Evaluation of Computer-facilitated Learning Projects in Higher Education. Committee for University Teaching and Staff Development Project. Available: <http://cleo.murdoch.edu.au/projects/cutsd99/handbook/handbook.htm>.

Riggenbach, H. (1988). Tapping a Vital Resource: Student-Generated Materials. In K. Bikram (Ed.), Materials for Language Learning and Teaching (pp. 117-128).

## 6. Appendices

To conserve paper, the Appendices to this report are only available at

<http://cleo.murdoch.edu.au/projects/cutsd99>