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Fostering (pro)active language learning through MOO

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Abstract

The Internet allows the language learner myriad opportunities to consult authentic sources and to practise using the target language with native speakers and other learners both synchronously and asynchronously. The current paper describes the design, development and implementation of language learning activities using text-based virtual reality or MOO (Multi-User Domain Object Oriented) in conjunction with the World Wide Web. The underlying purpose was to promote active, autonomous learning behaviours by enabling geographically distributed language learners to work with native- and non-native speakers of the target language on an engaging and motivating task with a concrete and meaningful outcome.

1 Refocusing learning

There is a movement away from teachers teaching and towards learners learning. There is a growing body of literature, especially from those who take a constructivist view of learning, that supports learners learning autonomously (see Reynolds (1997), Barr and Tagg (1995), O'Banion (1996) and Boggs (1996)). Comments from a recent online teacher training course provide illustration of this movement towards developing autonomous learners through their engagement in meaningful and purposeful learning activities (Table 1).

We are not, however, advocating teacherless learning. On the contrary, we seek to reposition the roles of both teachers and learners. MOO is one, not the, way to implement such repositioning. MOO breaks down the barriers of power and authority that are found in the traditional relationship, empowering both teacher and learner by engaging them in fluid and ever changing roles (tutor, co-learner, researcher, negotiator etc.), where content, pace, practice, resource utilisation, place, process and product are all open to negotiation.

Indeed, Little (1991:4) notes that, rather than a movement towards teacherless learning, learner autonomy is "…a capacity – for detachment, critical reflection, decision-

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Table 1. *Considering purposeful, autonomous online learning*

I want people to continue using this MOO , this little community of ours to continue their learning ... why do silly learning tasks just for the sake of it **(Teacher Training: MOO log, September 1999)**
Makes me see how in online learning there can be direct contact with researchers. **References can be given without having to get on two trams and look up a book in a library.** **Breaks down the barrier between researchers and practitioners.** **(Trainee teacher, August 1999)**

making and independent action". We would also argue that autonomy includes 'co-dependent pro-action' where co-learners are in a continuous and continuing process of negotiation as to what they learn, when they learn it, and how they learn it, or, as McClintock (1993) remarks in paragraph 56:

> An educational system engaging all in real participation – in constructing knowledge, developing skills, crafting designs, creating works, formulating theories, testing hypotheses, employing interpretation, exercising judgement – can enable all students (we would add 'co-learners') to attain an unprecedented improvement in educational quality.

The time has come for teachers to stand back and take the time to reflect on their approach to language teaching. What is emerging is a movement away from teaching a preset list of lexical items, grammatical structures, or other topics determined by the teacher or the teaching materials used and toward co-learning: the teacher must learn how to foster language learning strategies for the student, the student must learn to reflect, metacognise and collaborate with her/his peers, mentors, teachers, friends and other virtual interlocutors. As we have argued elsewhere (Weininger *et al*., 1998), teachers becoming co-learners is a repositioning of the power relationships that have existed between teachers and students since the advent of the Industrial Revolution almost 200 years ago. We have little doubt that this movement of repositioning power will cause breakdowns in real, physical, classes. The revolution of the Internet is changing all facets of all cultures that come into play with it, including the field of education. Rather than be overwhelmed and passive about discovering the changes that will occur, as we go together into the future, we advocate a pro-active collaborative approach forged from the knowledge we have, and rendered through the filters of the people and objects that come into our field of vision in the present. MOO, we believe, offers the opportunity for participation in this sort of learning experience.

2 MOO-based activities to promote collaborative, autonomous learning

MOO (Multi-user domain, Object-Oriented – a programmable, multi-user database program with permanent rather than transient objects) offers great potential for "...collaborative scaffolding of shared knowledge in the construction of new ideas..." (Warschauer, 1998) and increased opportunities for peer review and reflection.

The Bamburgh MOO project, based at Schmooze University MOO, was our first

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attempt to use MOO to take advantage of the sharing and creation of knowledge. We wished to investigate several points:

- how co-learner relationships developed through the length of the study
- what factors may have helped or hindered these relationships
- how and which in-MOO and extra MOO tools were used and with what frequency
- the effect of different levels of MOO competence on learners' success or failure in completing the assigned project
- how co-learners negotiated what, when and where and how they learned (including dealing with the logistical difficulties such as time zone differences).

As a result of the first set of trials of the Bamburgh project (Shield and Weininger, 1999: 99–116) we identified seven factors which appear to have an effect on the success of task-based, collaborative learning within MOO (Table 2).

These factors influenced the design of the second set of trials for the Bamburgh project. It was hypothesised that although it is impossible to predict personal or technical problems in advance, some of the factors identified during the course of the first trials as contributing to the success/failure of such a project can be minimised. If unfamiliarity with the technology, diverging time zones and pedagogical differences can be addressed, it was predicted, then socialisation and, thus, motivation is likely to increase, leading to successful completion of the assigned task. The second trials, then, were implemented according to several recommendations (Table 3).

Learners for the second set of Bamburgh project trials comprised groups from Australia and Japan (one hour difference between time zones), at least one of whom was MOO-experienced for each group. Teachers were also MOO-experienced and familiarised themselves with the aims of the project before agreeing to participate. The outcomes of these trials indicate that our hypothesis was, to a large extent, correct. Several learners reached specific project goals in that they:

Table 2. *Factors contributing to the failure of collaborative MOO-based project*

1.	**Technical problems:** such as frequent 'lag' (the time between entering text and seeing it on the screen) and unexpected connection breaks.
2.	**Lack of MOO experience:** Some inexperienced MOO users (both teachers and learners), those whose groups did not include an experienced MOO user, found both MOO commands and the 'room' metaphor difficult to understand and became demotivated.
3.	**Timezone differences** caused logistical problems, e.g., the 12 hour difference between Japan and Brazil proved almost impossible to schedule meeting times. This led to lack of group cohesion, and, thus, demotivation.
4.	**Personal problems:** One teacher had to withdraw from the project as a result of a heavy workload. Her group of students also withdrew.
5.	**Pedagogical differences:** emerged in spite of the fact that all teachers had agreed to subscribe to the philosophy of constructivism underlying the project as a condition for participation.
6.	**Motivational factors:** in addition to 2. (above) some learners had computer based connection problems which contributed to demotivation.
7.	**Lack of socialisation** due to most or all of the above factors.

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Table 3. *Minimising the risk in setting up a collaborative, MOO-based project*

MOO experience Each group must include at least one experienced MOO user.
Timezone differences should be minimised
Before agreeing to participate, **teachers** should:
1. gain MOO experience 2. familiarise themselves with the project and its goals.

- cohered as groups, taking responsibility for their own and others' learning by deciding the content of what they wished to learn and helping each other to use MOO effectively, as well as negotiating meeting times and which tools to use to overcome any difficulty they might experience in arranging synchronous discussions (Table 4).
- produced web pages based on an aspect of the virtual representation of Bamburgh which had interested them (Figure 1).

Interestingly, those learners who cohered as a group did not complete their web page, but did continue to meet beyond the end of the project, while those learners who produced web pages socialised less frequently but did produce well researched and structured web pages. This is an area worthy of further investigation.

2.1 Fostering the future

As a result of what we have learned from the Bamburgh project, we plan to investigate further how to foster the habits of group collaboration and co-operation as well as developing autonomous learning strategies within MOO. Researchers (Schwienhorst, 1997, 1998; Groves, 1997) have pointed to the appropriacy of MOO as an environment in which such habits and strategies can be developed, but few have carried out systematic analysis of how this may be achieved.

Like Shneiderman (1997), we believe that learners are engaged and motivated by participating in learning activities which are meaningful to them and whose outcome is available to a wide audience. The Bamburgh project provided us with valuable guidelines about how best to provide a framework in which learners are able to work collabo-

Table 4 . *Examples of group collaboration and cohersion*

I took the time to make some very simple web-pages so you could see examples of how web-pages develop. _ Have a look at the first one and follow the instructions to get you to the other three web-pages... (Participant's MOOmail to members of her group)
They [group members]... find that 1) they are very busy and can't meet so often and 2) they characters have been recycled. ...we are waiting for them to get back on as characters and to work out a good time to meet. I suggested that we write an adventer [sic] story together which takes the reader around the island through links – that way we don't need to be on-line at the same time every time we have time to work on the project (Participant's MOOmail to project developers)

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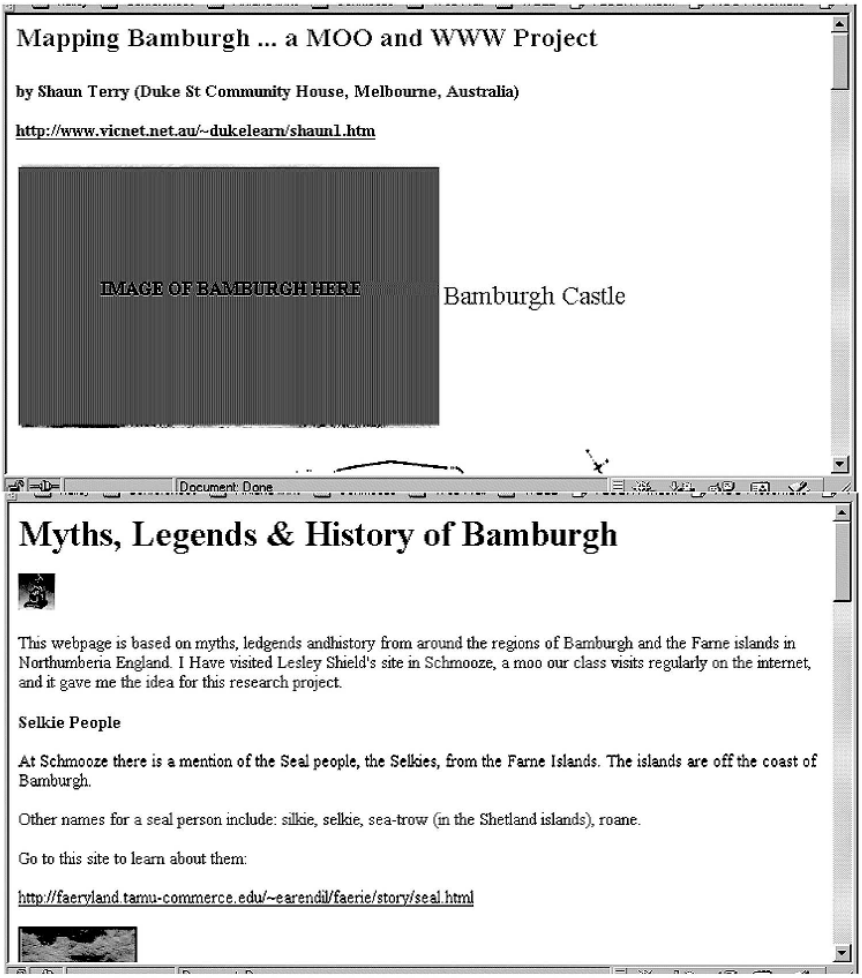


Fig. 1. Web pages produced by participants in the Bamburgh project.

ratively to construct their own outcomes, and in which meaning is negotiated both at the micro-level of vocabulary acquisition (experienced MOO users initially complained that they felt they were "speaking a different language" from inexperienced users until they had worked together for some time) and at the macro-level of final project outcome.

2.2 Task and activity types

Burdeau (1997) has identified three major groups of users of synchronous Computer Mediated Communications (CMC) environments: chat, comprising younger users and undergraduates, professional, including older users, postgraduate students, researchers, teachers, writers and members of various professions and non-native speakers of the target language.

From our own observations of MOO-users, we find these three categories to be appropriate to MOO as well as to wider CMC use, although we would wish to stress that users

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can – and do – move between categories, changing their linguistic register and behaviour according to the user category in which they find themselves at any one time (Shield *et al*., 1999). We have, therefore, turned our attention to an analysis of the types of activity in which members of these groups participate, categorising these in terms of user group and the types of activity in which each is typically involved. We have also considered activities in terms of their nature (are they collaborative? public? reflective?).

This approach, we believe, will allow us to develop learning activities which will be meaningful to learners. Such activities will have public outcomes, identified as a motivating factor by Shneiderman (1997), and will allow learners to develop their communicative competence not only through synchronous and asynchronous communication within and outwith their peer groups in-MOO, but will also engage them in reflective practices as they draft and redraft their public writings in collaboration with other group members. Table 5 illustrates the type and nature of activity we have identified as being typical of each of the three user groups suggested by Burdeau.

3 Proposed MOO projects

Among projects through which we will investigate the effectiveness of providing learners with a flexible framework of the type described, and which we are currently planning, we include one in Grassroots MOO and two in Dreistadt MOO. These are described below.

Table 5. *Activities typical of MOO users, according to type*

Community	Activity	Collaborative	Public Outcome	Reflective
Chat	Chatting	Yes	Semi-public	Can be logged
	Writing "graffiti"	Not usually	No	Sometimes
	Writing descriptions of self/rooms	No	Yes	Yes
	Extending the MOO	Sometimes	Yes	Yes
	MOO-based games	No	Semi-public	Sometimes
Professional	Chatting	Yes	Semi-public	Can be logged
	Writing descriptions of self/room	Sometimes	Yes	Can be logged
	Extending the MOO	Sometimes	Yes	Yes
	Professional discussion groups	Yes (in theory)	Yes	Yes
	Writing/reviewing academic papers	Yes	Semi-public	Yes
	Preparing joint presentations	Yes	Semi-public	Yes
	Preparing joint learning events	Yes	Semi-public	Yes
	MOO-based classes	Yes	Yes	Yes
	MOO-based presentations	Yes	Yes	Yes
	MOO-based games	Sometimes	Semi-public	Sometimes
Non-native speakers	Chatting	Yes	Semi-public	Can be logged
	Writing "graffiti"	Sometimes	Semi-public	Yes
	Writing descriptions of self/rooms	Yes (usually)	Yes	Yes
	Extending the MOO	Sometimes	Yes	Yes
	MOO-based games	Yes	Semi-public	No
	MOO-based drills	No	No	Yes
	MOO-based learning events	Sometimes	Semi-public	Yes

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3.1 The Grassroots project

Participants in this project will comprise groups of language learners and their teachers from around the world. Groups will comprise members from similar time zones to ensure that some synchronous meetings are possible. The project will be divided into two major phases, 'warm up activities' and 'main activity'. In order to avoid some of the problems which were identified during the course of the Bamburgh project, learners will be involved in two 'warm-up' activities which will:

- provide them with the skills necessary to function effectively in a MOO environment
- foster a sense of community.

During the main project activity, learners will work collaboratively to extend the MOO to incorporate artefacts of interest to their assigned group. Co-learners (traditional 'learners' and 'teachers') will use the MOO as an environment in which to:

- negotiate both meaning and content with each other
- research and discuss their chosen topic, identifying and sharing useful resources
- build objects
- draft and redraft descriptions both individually and in collaboration with others
- design a supporting website.

3.2 Dreistadt MOO projects

Dreistadt is a German language learning MOO, where we plan to develop two separate projects which will investigate not only how MOO may be used to support collaborative language learning projects but also the way in which cultural exchange may be encouraged within such an environment.

3.2.1 The Hunsrück project

Remnants of fourth and fifth generation German immigrant communities living in southern Brazil are now attempting to recover their cultural roots and language. Many of these communities originally came from a region in Germany called Hunsrück. This project will pair classes of L2 learners of German in Brazil with German students in the appropriate area of Germany. These 'cultural tandem' groups will research and document their heritage together. During the lifetime of the project, the MOO will serve as the participants' meeting place. In their tandem groups, they will build examples of their culture and heritage in-MOO, creating a 'virtual Hunsrück'.

Dreistadt MOO has a web interface that allows direct connection to web-based graphics, sound and videos, as well as to web-based texts, so supporting web pages created by participants will include multimedia elements.

It is anticipated participants will learn about their past and why their ancestors emigrated, examining the little-remembered fact that Germans once were forced to emigrate. Also, second and third generation immigrants in the German-based groups will share their experience of being immigrants with the immigrant German community in Brazil.

As they communicate with each other about this personally meaningful topic, partici-

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pants will be involved in linguistic development as well as sharing and learning about each others' culture and experiences.

3.2.2 The Jena project

For this project, it is intended that distance learners living throughout Europe and studying Deutsch als Fremdsprache (DaF) will be paired with DaF learners based at a German university. The distance learners will spend a week at the university for the residential component of their course.

During the course of the MOO-based learning activity, groups of DaF learners from Germany and learners of German at a distance will negotiate to identify an aspect of the German university city which interests them. They will subsequently construct a virtual representation of that aspect in Dreistadt MOO, employing the available MOO tools. It is anticipated that this project's last stage will entail the distance learners visiting the university city, meeting the German-based DaF learners with whom they have collaborated and comparing the virtual representation they have built in-MOO with the actual, physical, city. It is our hope that the experience will add an extra, and perhaps unexpected, dimension to the reflection and review aspect of the project.

3.3 Focusing on future outcomes

We are working towards more firmly establishing insights into how best to employ MOO to foster language learning and intercultural exchange. Our focus is on some of the trends we are seeing in our own work habits, logs of the aforementioned projects, logs of some of our colleagues' more recent sessions, and other data from other MOOs. We believe that MOO is a powerful agent to support language learning by virtue of the factors outlined in Section 4.

4 The MOO environment

MOO provides the user with the ability to create text-based objects, descriptions of those objects and commands to allow for their easier manipulation. This may be done either with or without synchronous help from another MOO user, and allows continuous drafting and redrafting of text until the writer and her/his collaborators are satisfied with the outcome. The ability to interact with the environment, as well as with other users, provides the learner with the time and space necessary to reflect both on what s/he is learning and how s/he is learning it. More specifically, we have identified metacognitive and cognitive language learning strategies which can be employed in MOO.

4.1 Metacognitive language learning strategies

All in-MOO activity can be 'logged', that is, recorded as text files or web pages. Learners can freely access the logs at any subsequent time, identifying and reflecting on content in terms of vocabulary, linguistic structures, grammar, spelling, or 'conversational' strategies used They can also reflect on the relative success or failure of specific communicative acts, examining the logs in an attempt to identify what was successful

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and what less successful. Users can finish a comment/post without interruption, a benefit also present in asynchronous fora. For language learners, this is a powerful way to employ reflective strategies at a more leisurely, and less inhibiting, pace.

Scrolling back through text on the screen allows learners to review their responses, even in a synchronous environment. The responses can be considered for their linguistic accuracy, as well as the content and intention of the messages.

Learners can use on-hand, web-based or MOO-based research tools to find information pertinent to a discussion without interrupting the discourse. In face-to-face interaction, consulting a dictionary or an encyclopaedia would probably interrupt or halt conversation; in synchronous, text-based environments such as MOO, this cannot and does not happen, since users become adept at managing multi-threaded exchanges and can scroll back through a discussion if they miss a comment. Engaging in multi-threaded discussions also lends itself to using metacognitive strategies in real time: this is virtually impossible in a face-to-face encounter, since such behaviour would interrupt discourse between interlocutors and be interpreted as socially inept, but can be carried out in a MOO without invoking either social or practical difficulties. A MOO-user can engage in discussion with multiple interlocutors without interrupting the flow of discourse with any of them.

4.2 Cognitive language learning strategies

Text-based discussions tend to be slower than in face-to-face – or even telephone – situations. Contributions to a MOO discussion can, therefore, be more reflective than in an oral exchange. At the same time, synchronous communication does require responses in real time: "Learners report that on a MOO there is just a bit more time to compose thoughts than there is when speaking, but not much more, leaving them no time to do any mental translating" (Turbee, 1996).

Real time exchanges provide learners with immediate feedback on their performance in L2 – if the effect of the communication is not what was intended, then the communication was unsuccessful, and the learner will have the opportunity to rephrase that communication. Further, as noted above, keeping a log of the exchange allows the learner to return to it later and to reflect on why it was/was not a successful communicative event.

4.3 Community-building activities

Unless a human relationship can be established in a medium that is purely text-based, lacking sound, images and non-verbal feedback, any attempt at forming a language learning community must be severely diminished. There is strong evidence that the computer as a mediator between human interlocutors is a real and effective motivator for language learning for several reasons (see Socialisation and Empowerment, below). Schlager and Schank (1997) explain their approach to using MOO in support of building a community of teachers wishing to further their professional development: "…to understand the basic discourse support needs of those whose business it is to conduct TPD (Teacher Professional Development) activities (on MOO), and to develop an appropriate shared venue, set of tools, and *social infrastructure* (our emphasis) to enable them to go about their work efficiently and effectively".

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4.4 Socialisation and empowerment

We believe MOO to be an effective forum for socialisation and empowerment for the "endless variety of human response" (Turbee 1996) found in language learning situations. An important factor is its relative anonymity. Shyer language learners, a common occurrence in the language classroom, contribute to discussions on an equal footing with their more extrovert peers; this is something that is not common in physical classroom settings.

Groves (1997) reports that some learners believe that "he who types fastest, shouts loudest". However, it is more likely truer to say that all MOO users can theoretically make themselves 'heard' because their contributions – even if these are made simultaneously – appear on screen in a linear fashion.

In spite of concerns about fast typists dominating discussions, long 'speeches' take time to enter via a keyboard. Synchronous exchanges, therefore, have a tendency to be made up of shorter sentences with abbreviated words and/or accompanying emoticons. Learners are encouraged to reflect on their contribution before making it. Learners are empowered because they can contribute to a discussion in the knowledge that they will not be interrupted. This can lead to increased confidence both socially and in terms of using L2.

Learners with disabilities are empowered in this anonymous environment. Judgements about participants – whether conscious or unconscious – cannot be made as a result of their appearance or their apparent physical abilities or disabilities. Visually impaired learners can participate fully in all exchanges by using 'screen reading' software, and aurally impaired learners are able to read text on the screen as it appears. Finally, speech impairments are non-existent in the text-based environment of MOO.

The possibility of meeting another user in-MOO is quite high, since this virtual learning environment is available 24 hours a day, 7 days a week, year round. If no other user is online, learners can even interact with the objects created by others within the MOO environment.

4.5 MOO interfaces and uses

MOO interfaces are frequently opaque, inhibiting, and unattractive to the new user, but quickly become transparent, empowering and motivating. We have anecdotal evidence that new users are often less than enthusiastic about the powers of the MOO, some to the point of hostility. However, they usually change their attitude quickly as they become more familiar with the most basic commands, purposes and options in-MOO, and are given the opportunity to make objects that are their own, with the corresponding language they create, which also becomes their own. L1 writing teachers are doing extensive research (e.g. English, 1998; Harris, 1996; Yurgens, 1999) employing MOO as a metacognitive conferencing tool with their students. They are finding that overcoming the interface is a small diversion in the process of accessing the power of logging, rewriting, revising and rethinking, which are all available tools found in-MOO. We look forward to finding others' ways and/or devising our own ways through this initial stage.

5 Collaboration and learner autonomy are the keys

Though users have the opportunity to build their 'own' rooms, there is an inherent struc-

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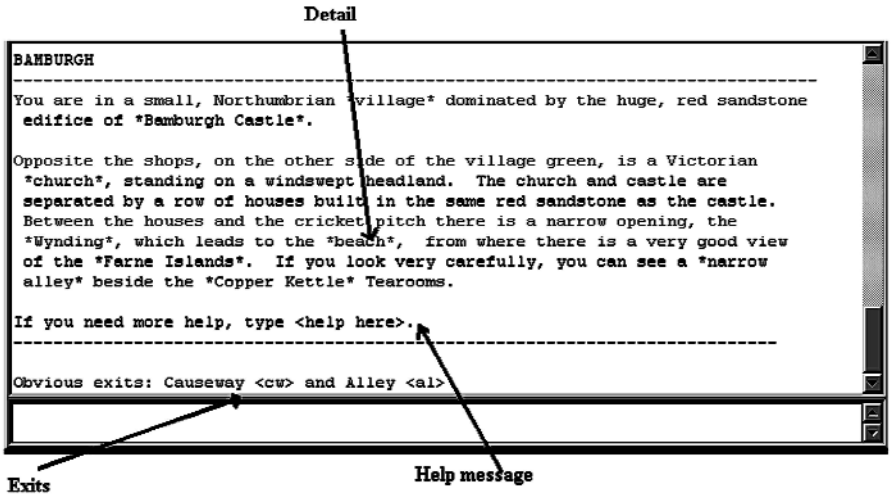


Fig. 2. Virtual Bamburgh.

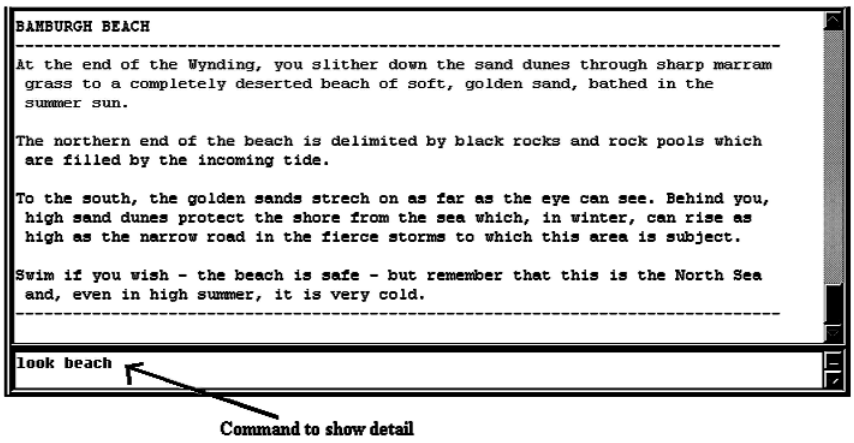


Fig. 3. Virtual Bamburgh – a detail.

ture built into MOO that relies on others to interact with the messages that can be created. Figures 2 and 3, which are screen shots from the Bamburgh project, illustrate this.

This sense of otherness and interconnectedness is a phenomenon not found in traditional classrooms, regardless of the teaching approach. Learners have an unprecedented opportunity for learning. It therefore demands collaboration, in all of the most positive senses of the word ‘demand’.

Usuki (1999: 6) notes that the “essential element of learners’ autonomy is their conscious ability to direct themselves.” Learners very quickly understand that this is the best way to learn to use MOO and to interact with others, all in the target language of the language learner. Figure 4 shows sections of an interview with two teachers of English (Nagora/Nina and Yaodong10) for whom English is L2. Already familiar with

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Nagora says, “I see lots of interesting materials for learning here and there in scMOOze”
Nagora says, “However, it is not that easy for everyone, who visit it for the first time.”
Yaodong10 [to Lesley]: I need someone like you who can help me to make use of the materials at schMOOze
Lesley asks, “Ok, let me ask first of all about your first experience of coming to MOO. What made you decide to try it?
...
Nagora says, “The idea of teaching is intriguing and it may be adapted to any sphere you like. I mean, I can make it useful for students who study general English, and then do the same for students of Busines English.”
...
Nagora says, “As a matter of fact, the people with + not always might be helpful. “
...
Lesley [to nina]: In what way not helpful?
Nagora says, “I felt a bit frustrated to visit it untill Godzilla took me and guided through the schMOOze, and then Flemmex helped me a lot.”
Yaodong10 sighs
Yaodong10 [to nina]: You are so lucky to have had help from so many kind people. And you are quick at learning.
Lesley [to Nagora]: What did you find difficult? And why did you come in the first place?
...
Nagora says, “It was very difficult for NNS to figure out what to do here, if nobody will guide you.”
...
Nagora says, “Tes, I guess with times, I will be an expert here.”
...
Nagora says, “Okay, we meet here in a room and can communicate and discuss any problems in private. That’s better than simple chat room.”
Lesly nods at Nagora.
...
Lesley says, “Can you expand a bit on that? I know you’ve used ICQ, Nina”
...
Nagora says, “Yes, when the conection is slow, ICQ is of great help.”
...
Lesley [to Nagora]: I think you might find that it’s not ICQ but the location of the serve that’s of help...
Nagora nods at Lesley.
...
Nagora says, “Yes, the commands [*in MOO*] are of great help also. I’ve met lots of them here, I didn’t know before.”

Fig. 4. Two EFL teachers (non-native speakers) consider the nature of MOO.

the chat program, ICQ, Nagora/Nina has immediately noticed the three dimensionality of the MOO world compared with the flat and transitory nature of the ICQ program, while Yaodong10 concentrates on the importance of learning from other MOO users. Finally, as Masinter and Ostrom (1993) point out:

> The multi-user aspect of MOO has several significant implications. … it makes it easy for people to work together. When using an information resource privately, the user has to be lucky enough to have a helpful person around…When using MOO, the user is fairly likely to find direct interaction with someone helpful. In addition, MOO provides a way for people who are simply after the same kind of information to work together to find it.

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Our experiences of using MOO with language learners and of developing MOO-based learning activities would support this argument. It is in the possibilities offered by MOO to break down barriers and to allow diverse users, whether 'learners' or 'teachers' to socialise and to work together to solve problems and to produce personally meaningful outcomes that we believe its power lies. MOO is a tool which, when appropriately employed, can be used to foster opportunities for learners to become increasingly autonomous in their learning.

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MOO addresses

Dreistadt MOO, telnet 129.177.24.214:7777,
Web Interface, http://cmc.uib.no:7001/,
Homepage, http://cmc.uib.no/dreistadt/

GrassRoots MOO, telnet health.acor.org:888,
Web Interface, http://health.acor.org/grassroots/java/,
Homepage, http://www.enabling.org/grassroots/

SchMOOze University MOO, telnet schmooze.hunter.cuny.edu:8888,
Web Interface, http://schmooze.hunter.cuny/test.html,
Homepage, http://schmooze.hunter.cuny.edu:8888

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