

Problems and Future Perspective of Scaffolding in the Network Based EFL Education

Yukari Aoki

Introduction

Scaffolding refers to the instructional support that an instructor or more skillful peers offer learners to bridge the gap between their current skill levels and the desired level (Kao, Lehman 1997). Advances in technology have made it possible for the classroom to be connected to a network, which has greatly changed the nature of learning as well as the characteristics of scaffolding. This paper examines the change of scaffolding, including how the network-based classroom has changed in nature and investigates the features and examples of scaffolding in education through a computer learning network, especially in the ESL classroom. Examples of this are correspondence through e-mail with the instructors and peers, electronic bulletin board (BBS), database references, hyperlinks to useful web page addresses, question and answer forums, mailing lists, on-line dictionaries, on-line tutorials and video conferences. Among the features of the networked classroom, the biggest change that has been brought about is collaborative learning. I would like to focus herein on the scaffolding that makes this collaboration easier. Through reference to the literature and a survey of my CALL students at two universities in Japan, I have identified some problems on the use of scaffolding.

Instructors often fail to provide students with scaffolding to make collaborative projects successful. For example, in a project using e-mail and on-line discussion forum or chatting, there may be lack of specific purpose or framework, and reference to samples and the instructor may not give proper guidance or assistance to compensate for this lack. Instructors also fail to provide scaffolding to prepare for on-line discussion or chatting, such as learning techniques for discussion or fast typing. With regard to frequently asked questions (FAQ) spaces, little knowledge among students of its location and hesitance to ask questions in public can prevent Japanese students from participating in projects. For the research project, instructors themselves failed to provide scaffolding students with driving questions, learning goals and research techniques. Therefore students may end up browsing on the Internet for a long time. We must also focus on the scaffolding that is desirable in Japanese higher education in the network-based EFL language classroom.

What is scaffolding?

There is a range of knowledge and skills that a person can only access with someone's assistance (Lier 1996). With such assistance, the person can achieve a higher-level task by combining it with his or her own existing knowledge and previous experience. This assistance is called scaffolding. Bruner (1983) explains scaffolding using the example of children's play: When children learn a new game, adults explain the rules, set up the situation to make the child's entry easy and successful and gradually pull back and hand the role to the child as he or she becomes skillful enough to manage it.

However, this "task" has to be within the reach of the learner's zone of proximal development (ZPD). According to Vygotsky (1978), children learn through social interaction with adults or capable peers. Their internal activities are closely related to external activities. Through social interaction, children master ways of thinking and doing. Vygotsky defines ZPD as the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under guidance or in collaboration with more capable peers. For example, no matter how great one's effort, it is impossible to teach very complicated math to a 2-year old child, because this task is not within the child's ZPD.

There are many views on scaffolding in terms of how it should be given. Vygotsky (1978) argues that assistance from more capable peers or a teacher is necessary. Glachan and Light (1982) say thorough interaction even between inferiors can create superior strategies. They conclude that two wrongs can make a right. It is a common experience when trying to persuade others with different viewpoints or assumptions, or trying to teach less capable peers, that one's own knowledge becomes clearer, more systematized and strengthened. Lier (1996) says using a variety of resources can lead to the accomplishment of productive work in ZPD. Such resources include assistance from more capable peers or adults, equal peers and less capable peers. He suggests scaffolding should be given from multiple levels, because each level of scaffolding helps learners from different perspectives.

How has the introduction of the network to the classroom changed the features of scaffolding?

Adoption of the networked classroom has resulted in two significant changes; namely in the teacher's role and the style of learning, which has more collaborative features. In traditional classrooms, the only available scaffolding resources are the instructors, books or references and peers that exist in the classroom. Verbal instruction and questioning are the most common form of scaffolding in traditional classrooms. The teacher's role is to provide scaffolded assistance through modeling. With demonstration, students can gain new skills and understand new concepts. The instructors and students share the same space and the

traditional role is determined. The instructors are experts and the students are novices. The teacher's job is to pass new knowledge and skills to students. Scaffolded instruction is the interaction between them, where the teacher and learner share the responsibility for learning (McLough, Cowan 1999).

However, in the technology supported learning environment, the role of the instructor has changed and the concept of scaffolding has expanded to include many new forms of support. The instructor does not give students knowledge or help them in the traditional one-sided fashion, but plays an active role as an initiator and co-participant in the learning process. In the environment supported by technology, the instructor or intelligent agent can provide scaffolding so that learners gain new skills, concepts and knowledge. To provide effective scaffolding for students and act as a facilitator are important jobs for instructors. For example, the instructor is responsible for handling the teacher-student, student-student relationships in the networked classroom. Particular emphasis should be placed on encouraging students to participate. The instructor should act as a facilitator to promote this participation. Then as the students get used to it, gradually less interference is needed (Warschauer, Turbee, Roberts 1996).

In addition, Daniels (2002) states that another important responsibility of the instructor is to instill the skill of selection, evaluation and processing of large amounts of information to their students. It is also an important job for the instructors to teach students learning strategies and motivate them by providing effective scaffolding in the networked classroom, although there is little theoretical backing in terms of what "effective" scaffolding is. In order to make scaffolding successful, the instructor needs to know how to give appropriate and effective scaffolding to students working on the computer network.

Another difference with the traditional classroom is that in the computer networked environment makes peer collaboration easier. Students inside and outside the classroom can exchange and share information and discuss issues over the electric bulletin board and create projects collaboratively. Traditionally, for students working collaboratively or getting feedback were not easy things to do. Collaboration among learners can succeed in terms of both cognition and affect (Lim and Jacobs 2001). It makes it possible to bring together pairs and groups of students for collaborative learning projects in various classrooms around the world (Warschauer, Turbee and Roberts 1996). Learners can get feedback from instructors, peers outside the classroom, authors of webpages and other authorities. Warschauer, Turbee and Roberts (1996) write as follows:

Learning is a social activity and knowledge is socially produced. This is the center of modern language teaching theory. The ability of computer networks to facilitate the sharing of ideas and writing among students is difficult to dispute. By teaching

students how to develop their ideas collectively, we teach them new and better ways of learning and producing knowledge.

Bonvallet and Luce (2001) state that due to on-line collaboration 1) the quality of students' work improved because of work put on line, 2) some of the isolation students feel in school was broken down and they could engage in a kind of focused planning which is not possible when working alone, and 3) students are more motivated.

The instructor needs to understand the change in the larger range of scaffolding brought about by the network and consider how to provide effective scaffolding to students so that students can adopt good learning strategies, achieve higher motivation, select, evaluate and process large amounts of information, and collaborate with other peers.

What kind of scaffolding is used in the current network based classroom?

There are two type of scaffolding: personal and impersonal (Sherry 2001).

Impersonal scaffolding includes brochures, booklets, online tutorials, links to databases and useful hyperlinks, on-line dictionaries and printed based or electronic performance support materials that do not require interaction. Scaffolding for collaborative learning is included in this category. Personal scaffolding includes help from faculty or fellow students, online help from experts and direct instruction. It provides feedback and interaction.

Collis (1997) developed a number of "tools to enable group work and sharing of resources and ideas. Examples of scaffolding are e-mail, bulletin board, question spaces, hyperlinked access to course resources, groupware and databases, and threaded computer conferences.

According to Collis (1997), the key indicators of effective scaffolding in a web based environment include:

1. The provision of learning resources to help students solve their own problems and share with others.
2. Offering multiple channels of communication to enable conversation, exchange of ideas and discussion.
3. Provision of support for collaborative tasks and development of higher ordered cognition.

Many of these are currently used in ESL and EFL classrooms around the world. I would like to examine the problems of such scaffolding especially for collaborative learning in EFL classrooms in Japanese higher education. Following are examples of scaffolding used in some collaborative projects in Japanese college EFL classrooms, and its associated problems.

Scaffolding in projects using E-mail

Using e-mail has made it easy for students to get feedback from the instructor or peers inside and outside of the class. Students can ask questions to the instructor as well as other peers and anybody they want to contact. Students are free to ask questions or consult with the instructors, as a result of which students can have good communication with students as well as motivate them. Many projects have been done using e-mail, such as key pal projects. Through communicating with peers outside of their native countries, students are not only able to practice English in a real setting, but also have opportunities to learn about other cultures. Many researchers say that e-mail connections have had a positive effect on the ESL classroom in an authentic context (Shih, Cifuentes 2000, Warschauer 1995, Altano 1998). However, even though this type of project can provide motivation for students, unless the instructors give students a specific purpose or assignment, the exchange can end up being superficial and the relationship with key pals is likely to disappear (Altano 1998).

Another problem with key pal projects is that in many cases students can not get a reply from anybody in spite of their efforts. In CALL-based EFL classes the present author has taught, 15 out of 95 students failed to get any reply. There are cases in which some key pals stop writing all of a sudden. It is a good idea to find key pals of different nationalities or try to find more than 2 key pals at a time (Warschauer, Shhetzer, Meloni 1995).

I also gave my students links to sample e-mails to which I had received replies right away. The survey I took in the end of the class clearly showed that this helped my students a great deal. Students are advised to state their interests specifically. Many Japanese students don't seem to be good at introducing themselves, especially with regard to their interests or things they like to do. There are many examples such as "Hi, I am a Japanese college student. I like to listen to music, play sports" and so on. I advised them to write the specific kind of music or group they like. If they happen to play in a band, they should write about that.

Another problem is lack of purpose. In the beginning, writing to somebody in another culture can be exciting. However, without a specific purpose for the e-mail exchange, the motivations of students can disappear. Therefore, giving students some assignments like interviewing their pen pals on specific topics or writing a report for the class based interview on their pen pal are good ideas (Warschauer 1995). Kaufman (1998) also says

Giving students free rein to choose their key pals as well as the topics of discourse may result in making the writing less versatile and my research seems to indicate that even class to class email exchange tend to be limited to superficial dialogue. The question is how we can best harness this new technology and use it so that learners are challenged to cross the "zone of proximal development."

Scaffolding in projects using BBS, discussion forum, mailing list (e-mail discussion list)

Computer mailing lists are discussion forums by e-mail among groups who are interested in a certain topic. If students find a topic they like, they submit their opinions and sometimes others respond to that message. These messages are sent by members who are subscribed to that list, and are distributed to all the members. Sometimes the teacher creates an in-class mailing list or forum. This can also be open to people outside of the class. However, it is said that there are currently more than 54,000 mailing lists and more are added every day. It is important for the instructor to find or create useful mailing lists.

An electronic discussion board (BBS) is often used for writing projects, and exchanging thoughts and opinions. It provides a powerful collaborative medium, where students can negotiate and construct new understanding. On-line collaboration tools can be used to foster knowledge building communities that encourage learners to articulate and reflect on their understanding and to learn from the perspective of others. Such tools support perspective building and reflection by allowing students to share products, experiences and ideas (Land, Dornisch 2002).

However, Land and Dornisch (2002) also found that some students failed to participate in writing because of lack of confidence to write in public and to write interesting messages. Japanese students already tend to be shy about writing or speaking in public. Oshima and Oshima (1999) pointed out that Japanese students are not used to participating in public discussions even in Japanese. They have not been trained to do so during school. Therefore, it is difficult for them not only to state their opinions but also build their thoughts in response to those of others. It is important for the instructor to give guidance and provide a framework on how to carry out discussion. In the CALL-based EFL class the author taught, we conducted a project to look for English expressions to agree or disagree with someone. Students subscribed to a NEWS group, where many pro and con issues are debated, and picked up such expressions from the NEWS group and submitted them to the in-class BBS. Post survey showed students learned how to build on somebody's opinion by stating whether they agree or disagree. Such preparation is needed especially for Japanese students who are not used to debating on one issue.

Oshima and Oshima (1999) used CISLE (computer-supported intentional learning environments), which are a kind of BBS, with the aim of helping learners develop their thoughts and knowledge collaboratively, and found that in spite of providing students with scaffolding (showing homepages to provide the argument framework in discourse), students failed to achieve higher qualities of discourse. They concluded that, implementing modeling and articulation are important to facilitate discourse. In addition to giving students guidance, students should be allowed to access the previous databases of sample

discussions which were highly evaluated, and discuss collaboratively why they are evaluated highly. As described above, teaching discussion techniques and giving samples or framework for better discussion are needed for Japanese EFL students.

Scaffolding in a project using real time chatting: MOO, online chat Internet relay chat)

The instructor can arrange real-time discussion with partners in class as well as out of class in other parts of the world. Online chat is a valuable tool for in-class and out of class communication (Warschauer 1995). One can create one's own in-class chat room or an IRC (Internet chat relay). IRC is a service that allows people from all over the world to chat together at the same time. It consists of numerous channels. All you do is to choose the channel and type at your own computer. These messages are sent immediately and posted on the screens of all other participants.

When using IRCs in the Japanese EFL classroom, students have a hard time following the discussion, since the other participants' typing speed is very fast. In addition to the matter of typing speed, the topic of conversation and the technique for joining an on-going conversation also make participation difficult. Even if students choose a channel they like, they seem not to know what to talk about or how to join and respond to others' comments. Many end up just sitting there and watching the on-going conversation on the screen.

In order to solve these problems, the instructor can create his or her own channel. If there is a partner class in another part of the world, the instructors can set up a time and arrange a chat room meeting (Warschauer 1995 e-mail). Since there is a time difference between Japan and other countries, the selection of the countries will be limited. It is necessary for the students to practice typing as well as on-line chatting in their own classroom before going to the real world, or IRCs.

The most elaborate real-time discussions take place in special simulated environments called MOOs. Participants on a MOO can not only speak to the whole group or an individual within the group, but also can travel around within the simulated environment and help create that environment. MOOs are becoming very popular for educational purposes and there is even a special MOO created for ESL students and teachers called schMOOze University (Warschauer 1995).

However, there are a few problems. Many universities in Japan do not have an environment to use MOOs. Some universities do not allow access to use telnets because of security reasons. Therefore, even if the instructor wants to use a MOO for the class, it is impossible to do so. In addition, learning to use the MOO technology is too time consuming for students (Bonvallet, Luce 2001). Users have to master many commands and complicated instructions to use MOO, and it often seems that the user's interface is inadequate. To make

the matter worse, Japanese students have a hard time figuring out all the commands and directions written in English. Without elaborated guidance written in Japanese, most find it hard to use it.

There is another problem. Land and Dornisch (2002) point out that on-line collaboration in the classroom is occasionally unsuccessful because of lack of understanding on the part of the instructor employing on-line technologies to cultivate sharing and integrate multiple perspectives. In such cases, instructors and students alike are starting from the same level of inexperience with the MOO and learning together with preconceived boundaries. Instructors need to have a lot of experience using a MOO, so that they can teach students with confidence.

Besides the above, my survey revealed a few problematic scaffolding issues. They are related to frequently asked questions spaces (FAQ) and hyperlinked access to course resources. According to a survey taken in 2001, the least used aspects of scaffolding among students were these based FAQ spaces. A FAQ space was created in the class home page for students to ask questions freely about the use of the software or hardware or any related issues to the class assignments. However, few submitted their questions. They stated in the survey that they did not know it even existed. Even those who knew about it mentioned that they felt too shy to ask questions in the public. It is an instructor's job to encourage students to ask any questions they want and tell them not to be shy. Sherry (2001) says information about scaffolding must flow freely throughout the system to all participants. If a support exists, but users are not aware of it, it is the same as not being there at all. This is true of all forms of scaffolding. The instructor needs to inform students of the location of any function in the web as well as its usage, especially for Japanese students who are not used to asking questions, even in the classroom. Making it possible to submit questions anonymously is one solution, as well as making the help page location comprehensible in the class web page.

Hyperlinked access to course resources are the most used scaffolding among students. These are hyperlinks to other home pages where students can search for information. Land and Greene (2000) state that information resources from other web pages can play a critical role in the learning environment, because students can access new information easily. Yet, simply providing access to information does not guarantee that students will use it to solve problems or deepen understanding. It is possible that students view this type of information as superficial answers to their questions. Without generating driving questions or learning goals, it is unlikely that retrieved information will be meaningful to learners. Just browsing can be a waste of time. Rather than assigning an open ended project, it is important for instructors to give students an organizing framework or goal.

Conclusion and discussion

In the foregoing I have looked into the type of scaffolding needed to promote learning in the network-based classroom, and pointed out some problems in the EFL classroom in Japanese higher education. Most current scaffolding is given based on the "hunch" of the instructor (Takeuchi 2000). This "hunch" needs to be theoretically supported. Current scaffolding from instructors generally fails to provide students with a specific purpose, framework or goals, samples for reference, and preparation to participate in discussion in order to achieve project goals. In many cases, the location and usage of scaffolding is not known among the students.

To make the most of scaffolding, it should be given with these points in mind. More research is needed to seek the best scaffolding for Japanese EFL students in the networked classroom. The adoption of what has worked in Western countries does not always work in the Japanese EFL classroom setting.

Therefore, appropriate scaffolding for Japanese students should be considered in order to make networked language learning more effective. Moreover, we instructors need to consider using technology not as a duplication of what could be done in conventional ways; rather it is necessary to envision technology as a tool for individualizing and extending study beyond the opportunities offered in our isolated classrooms. Technology is changing every day. It is important for us as instructors to familiarize ourselves with this progress and constantly think about ways to adopt it in EFL teaching.

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