Scaffolding (Peer Tutoring) Through Synchronous and Asynchronous Modes of Interaction: Vygotsky's Concept of Zone of Proximal Development

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Abstract: The present study aimed at exploring how peer tutoring (Scaffolding) can be incorporated through synchronous and asynchronous modes of interaction for increasing learning in distance education. Qualitative approach was employed to reach to results and conclusions. The focus of the study was on highlighting the concept of zone of proximal development, and scaffolding in relation to peer tutoring. It also addresses synchronous and asynchronous modes of on-line interaction which may be employed successfully in order to increase learning opportunities in distance education. Scaffolding is a teaching strategy that is based upon Vygotsky's concept of Zone of Proximal development. The results revealed that scaffolding is very much effective in supporting the learners by providing adjustable support according to needs of individual learner by any other skilled person. Peer tutoring is one form of scaffolding where peers learn from more skilled peers. There is the great need to introduce the concept of peer tutoring both in formal and non-formal education in developing countries as well. Scaffolding is/ can successfully be incorporated through synchronous and asynchronous modes of interaction in distance education. It is organized informally, non-formally and formally in universities for providing distance education.

Key words: Social constructivism, Zone of proximal development, Scaffolding, Peer tutoring

Introduction

Now a- days there are a lot of alternative teaching-learning strategies in vogue. The traditional teacher-based or subject–centered approaches where teacher is considered as the sole authority of disseminating knowledge are not very much appreciated. All over the world the educationists/psychologists and philosophers are promulgating that sharing of ideas and collaboration among learners should be kept at top most priority.

Learnability enhances with support of skilled persons. As much as the conversation increases, the required level of support is provided to the learner his/her cognitive development increases and he/she can learn even more complex tasks.

The present study is aimed at exploring "the application of Vygotsky's Zone of proximal development through synchronous and asynchronous on-line modes of interaction".

Research Questions

The research was initiated to answer following questions.

1. What is Vygotsky's theory of social constructivism and how can it be applied to education?
2. What are synchronous and asynchronous modes of on-line interaction?
3. How can Vygotsky's concepts of zone of proximal development, and peer tutoring (scaffolding) be applied in distance education through synchronous and asynchronous modes of on-line interaction?

Methods and Designs

Data was collected through qualitative approach. Meta-Analysis and relevant literature was reviewed in order to answer the research questions. Books; research articles; research projects on peer tutoring, and collaborative learning; and material regarding on-line interaction available on different websites was reviewed in order to achieve the objectives.

Conceptual Framework

While qualitative approach was employed in this study where meta- analysis, review-reports were used to reach to conclusion.

Figure 1
Scaffolding through synchronous and synchronous modes of interaction
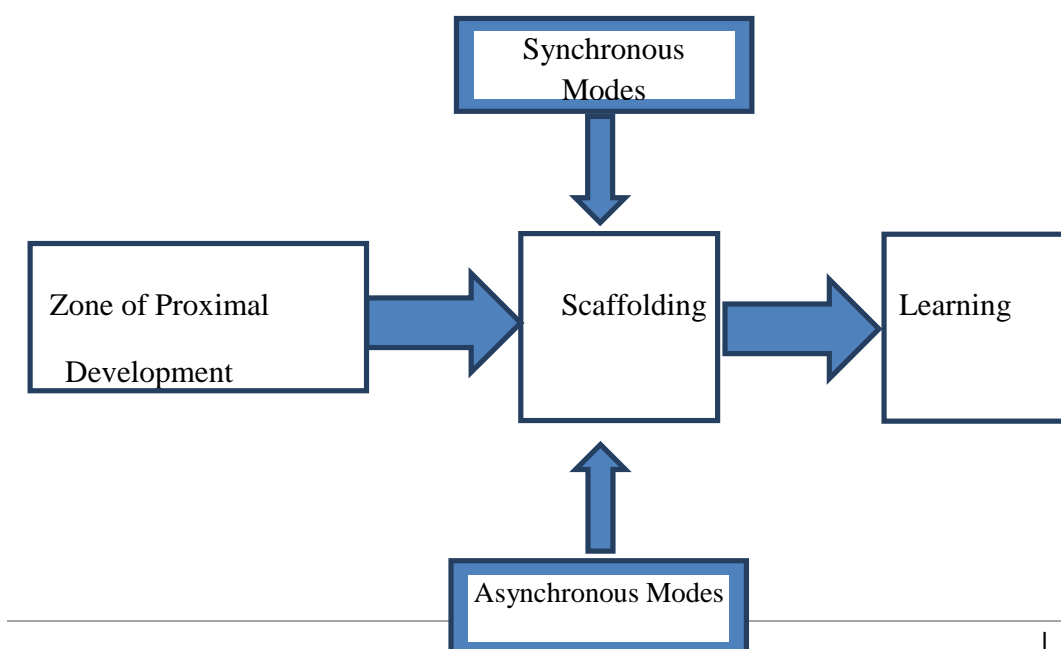
Literature Review

Social Constructivism

Modern educationists support constructive approach to learning where it is believed that students actively construct their own knowledge. It is a psychological view point that contends that much of what individual learn and understands is formed or constructed by him (Bruning et al., 2004). Jean Piaget, John Dewey, and Lev Vygotsky are among those psychologists who believe that learning is not a passive act but it is highly an active process where learners are creating their own knowledge. Activity based education, child-centered education, transformative education, collaborative education, and dialogic education are all forms of constructivist approaches to education. Lev Vygotsky was a Russian psychologist. He placed a great importance to social dimensions of learning. He believes that learners actively construct their own learning that is based upon active interaction of learner not only with the environment but with teachers, peers and family members. According to John Santrock (2011) knowledge is situated and collaborative. Language plays a significant role in learning. As much as students are involved in conversation, there are more chances of learning to take place. Vygotsky asserts that learning ranges from the level of learning without the support of any other person to the enhanced learning level acquired through the help of teacher or skilled person.

It is a proven fact that conversation gives a boost to learning. As much as people have dialogue, share their ideas, involve in conversation, and speak and listen to each other their concepts get improved. They constantly frame and reframe their concepts in light of their own personal experiences, and the experiences of other people. There is a positive engagement of students for effective learning.

Zone of Proximal Development

According to Lev Vygotsky every person has two limits of learning. One is independent level of learning that is acquired through his own personal efforts without support of other people, whereas there is another level that is dependent on other people. The lower limit is level of development and upper limit is potential level of development (Blake & Pope, 2008).

 Vygotsky asserts that a child level of learning can surely be enhanced by engaging other people in his/her learning. For instance, if there are two children of eight years of age, both have the

lower limit equal to eight years of age. With the help of skilled person one's learning level may be reached to nine years and others may reach to twelve years (Santrock, 2011). Vygotsky, 1978 states that there is a distance between actual development level that is determined by independent problem solving and the level of potential development that is determined through problem solving under adult guidance or collaboration with more knowledgeable peers.

The distance between lower and upper limit constitutes zone of proximal development. Santrock (2011) asserts that instead of intelligence quotient we should emphasize on zone of proximal development. One of the strategies to increase zone of proximal development is scaffolding.

Scaffolding

Scaffolding is a teaching strategy that is advocated by Vygotsky. It is an adjustable support according to the level of learner. In start amount of support can be more and gradually when learner acquires a concept or learns a skill then level of support may be reduced. Ormrod (1998) states that guidance is gradually phased out, and the children eventually start to perform those tasks at their own. Again if there is need of more assistance it is provided to him. Scaffolding can be done through teachers, parents, skilled class-mates, senior students or any other person who has learned a skill or knowledge. That skilled person can teach to the learner. Scaffolding helps in acquisition of those complex skills or knowledge that one cannot learn or master at his or her own. A conceptual change occurs by negotiation among learner and the skilled person. It is a guided interaction. Coon and Mittere (2007) state that when task is new, the more skilled person may use direct instruction but when his/her competence increases guidance can be reduced.

Peer Tutoring

Knowledge is grounded in social context (Kozulin, et.al. 2003). Whatever type of background one has it has an influence on one's life. Learning cannot take place without a social context. Each learner's individual experiences and back ground contribute significantly in his/her learning. Students learn from each other also. Research suggests that classroom learning improves significantly when they participate in learning activities in small groups of peers. They are encouraged in small groups to ask questions, explain their own point of view justify it, articulate reasoning and reflect on their learning (Goodman, et.al, 2005) .When they share their learning with each other not only their own concepts get refined but other one also learns a lot. Peer tutoring is of great value in the era where alternative approaches to education are very much in demand. Now one-fits-all approach is not applicable. Every child has its unique needs, background and pace of learning. If one can learn quickly the other may need not only the

additional time but the additional support and effort as well. This is diversity and this is beauty. This diversity calls for unity. If we want to ensure that all students learn at their own pace, in their own context, with their own style, we have to promote the student-centered strategies and approaches.

Peer tutoring can also be justified as there is a constant pressure for "getting more with less". Peer tutoring may be justified very well with the demand of alternative approaches as well as to get benefit from the limited /scared resources. Peer tutoring enhances students' interest and sharp their cognitive skills (Rizve, 2012). Both accept responsibility for learning. It also increases social competence of peer tutor and peer student. The students' emotional skills also enhance as they learn how to manage relationships outside of family. Their speech and communication also get improved. Peer tutoring is a meaningful activity. Socially meaningful activity has an important influence on human consciousness. (Bredo,1997; and Tudge & Winterhoff, 1993).

Forms of Peer Tutoring

Peer tutoring has many forms. It can be one- to- one, group, reciprocal, same-age/grade and cross-age, formal, non-formal or informal, in all its forms the mutual sharing, conversation, two-way communication is very much evident. The learners share their learning with other and in this way their learning improves.

Peer tutoring can be informal as well as formal. In informal peer tutoring peers masters the concept at their own without the proper arrangement done by the institution, whereas in formal peer tutoring, students are paired by the institutions formally. There can be many mechanisms for that. One possible way can be to set a certain criteria for becoming tutor, and students are asked to register themselves with the placement officer/ or student affair in charge. After the diagnostic assessment of students learning those students can be identified which are weak in learning and need some additional help. After that each weak student can be paired with a peer tutor who would mostly be a senior. Peer tutoring can be done through synchronous as well as asynchronous modes of on-line interaction.

Figure: 2

Forms of Peer Tutoring
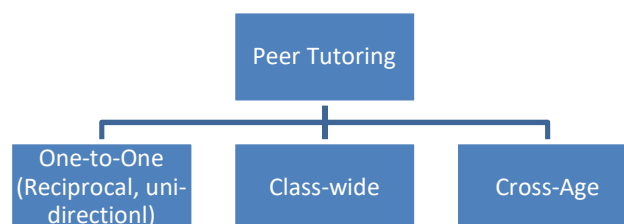
Realization of educational value of collaboration among learners call for the introduction of synchronous and asynchronous tools to distance learning environment. Effective web-based distance learning calls for problem solving approaches where student can learn to solve their educational problems through collaboration. Traditional groupware tools- such as chat, threaded discussions, and email are also used for collaboration (Goodman, et. al, 2005).

Distance Education

Distance education is a non-formal education. The hallmark characteristic of distance education is that learner and teacher are not present at one place. They are remote from each other. The essence of distance education is its remoteness. It may happen at times that they have never seen each other even a once. Those who are far away from the educational institutions or those who do not enroll themselves in regular education due to any reason may get education while staying at home.

As the students are distant from teacher, and have the limitation of not attending the classes, a lot of problems may arise associated with their learning. One solution to these problems is on-line interaction. The amount and quality of communication has increased to multifold. The magnitude and quality both are incomparable with past. Synchronous and asynchronous modes of interaction are a part of day to day life. Even the uneducated persons are using these modes of interaction with a great fluency. The generation gap is no more in debate. Rather this is technology gap that is in discussion. Those who can use these technologies and are well-versed with new gadgets they are popular among all while those who are illiterate in the use of these gadgets are considered old-fashioned and outdated. I-pads, notepads, and palm gadgets have transformed the life. Different countries are utilizing these devices and ICT in teaching- learning processes. On-line interactions have brought drastic changes in teaching and learning. Various online technologies facilitate the teaching and learning to students with diversity. On-line modes of interaction as they are in use now were never before. Interaction is considered a key element in peer tutoring. It is crucial for successful learning in distance education. Learner-learner interaction can takes place between two learners either in real-Time or delayed time (Chou, 2002).

Researches indicate that Interaction plays a critical role and contributes positively in learners' satisfaction, academic achievement, motivation and attitude towards distanced education. The interaction enhances learners satisfaction (Fulford, & Zhang, 1993, Hartman, et.al,1995, Lenning & Ebbers,1999, Thompson, 1990).

On-Line Modes of Interaction

Synchronous and asynchronous objects and actions are available for students overtime for their facilitation for examinations. Synchronous are those modes where despite of physical distance

people can interact with each other at the same time, whereas asynchronous modes of interactions are those where people cannot interact with each other at the same time but they can interact at different times. On-line learning provides a flexible approach for learning. Students can personalize their learning without having fear of being marginalized. They can have their own pace of learning.

Synchronous Modes

Synchronous modes are those modes of interaction where participants are remote but they are conversing with each other on the same time. The two partners in communication, one in one part of the world and the other in other part of the world can talk and share with each other at the same time. Reciprocal communication is very much there despite of physical distance. They provide real-time communication and collaboration in a "same time-different place mode (Ashley, 2003).

Students may interact by utilizing multiple ways of interaction. They can share their ideas and can collaborate with each other. They can ask questions and get the answers in real time through synchronous interaction technologies.

Synchronous technologies are audio conferencing, video-conferencing, virtual worlds, traditional chat rooms, instant messaging, webcasts, Shared whiteboard, PB Wiki, Skype are cost effective means of sharing among learners. There is the need to introduce them among learners. The group projects, assignment can be done very effectively if these synchronous modes are utilized.

skype and viber and application sharing etc. Synchronous meaningful learning activities create such an environment where learners can interact with each other, solve their queries, work on collaborative projects, and facilitate each other in learning (Simonson, et. al, 2009). More over when student perceive higher level of collaboration their satisfaction level arise with over all e-learning (Er, et al, 2009).

Different shared applications can help learners in collaboration in various countries. Netopia's Timbuktu and Microsoft's NetMeeting provide a view onto applications running on one of the user's computing environment. Each user can have control of this application but he will be dependent on the owner of the shared application keeping the environment running. O'Donovan (2015) has suggested use of instructional videos, skype, pen tablets, mobile, and computer for interaction among peers. The instructional videos can be shared with each other with great ease through chat and whatsapp, and strong linkages can be created through use of other synchronous modes of interaction.

Asynchronous Modes

Contrary to synchronous modes, there are some other modes in which both parties interact with each other from distant places and different time. One person drops his message and other gets in his or mail box, and go through it at the time convenient to him or her. In asynchronous learning environment students can learn at their own pace, at their own time, with their own time and place. They can determine the frequency of repeating one text, material or object without being having fear of other's annoyance. Peer tutoring in an asynchronous mode provide more and more opportunities to interact with each other, provide feedback, view and review their own learning, and assess their level of mastery on any assigned topic or project. Asynchronous modes of interaction are more popular among users as they are less costly; require minimal hardware/ infrastructure and can learn at their own pace (Meloni, 2010). Students can increase their learning by synthesizing at their own pace. This makes them more reflective. They can confront debatable ideas and reflect on them and create logical answers to different problems.

Asynchronous modes of on-line interaction are discussion boards, web logs (Blogs), messaging (e-mail, streaming audio, streaming video, narrated slide shows, etc. Peer tutoring can be encouraged through asynchronous modes very easily, as no special expenditures are required for initiating it. The teachers can also assign group assignment to them which they can complete with the support and participation of each other.

Conclusion

Zone of proximal development is a concept suggested by Lev Vygotsky in relation to social constructivism. Scaffolding has been proved through many researches to be very advantageous and highly effective pedagogical strategy in various countries. Few researches have been conducted in Pakistan also on peer tutoring, but there is the great need to introduce it in both formal and non-formal education. Scaffolding can be done through both synchronous and asynchronous modes of on-line interaction. It can be more fruitful in non-formal/distance education where students have limited opportunities to interact with teachers and peers.

Recommendations

It is recommended to introduce scaffolding through peers at each level of distance education. The smart phones, tablets, lap-tops, desktop computers can equally be useful in this regard. These devices are in use of most of youngsters. Both synchronous and asynchronous modes of on line interaction can equally be beneficial. It depends on the purposes and need of the task. It can be used in our country with great ease, by employing less resources or even available resources and getting maximum benefits. Peer can help each other in learning and facilitate them in projects and assignments. Whether it is organized formally by the institution of Non-Formal

education or by the students at their own informally it can be beneficial for all those which are involved in such type of collaborative learning.

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