Exploring the Theory of Constructivism through Active Learning Strategies in a Classroom

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Abstract

In most Indian secular education settings, students are accustomed to passive learning where the teacher plays a dominant role in passing on information to students who are considered repository of knowledge. Contrary to this is using the active learning strategies which encourage the students to interact cognitively, socially, behaviourly with content and processes to construct knowledge within the classroom. Specifically, this qualitative action research is an attempt to see how students respond to active learning strategies such as audio-visual resources and role-plays to form their own understanding and learn individually as well as socially in a peer-group. Data is primarily obtained through teacher reflection journals, student work, student reflections, and external observer's feedback. This study found that students enjoyed participating in activities and were engaged in its processes. It enhanced student learning and helped students take responsibility for their own learning. Active learning strategies also assisted the teacher in understanding her role as a teacher in student learning and aided her in achieving classroom objectives.

Keywords: Active learning strategies, individual knowledge construction, social knowledge construction

Introduction

Tell me and I forget,

Teach me and I remember,

Involve me and I learn
> *- Benjamin Franklin (1706-1790)*

Most schools in India follow the traditional approach to teaching. This 'banking' system of education dominates a classroom culture where students operate as passive listeners in whom knowledge is deposited, and where the primary goal is passing an examination. Learning, too, is assessed on the basis of remembering information, and the best answers are those that are closest to the textbook from which they are taught. Thus, students are usually required to rote memorise their answers often without understanding associated meanings. With years of being taught under these conditions, students' potential to think and make decisions related to their own learning can be heavily compromised.

These traditional teaching methods have predominantly shaped my academic background, too. Disillusioned by this system of education and its resultant negative effect on students' psychology, I turned to life-skills education, and started my career teaching these skills in schools and in private classes. I adopted 'active learning' strategies which were a requirement to achieve my educational objectives. From the beginning, I could clearly observe its impact on my students. Thus, I decided to base my research on active learning and its impact on students' learning using the theory of constructivism.

Active learning

Watkins, et al. (2007) state that, through active learning, the learner may be engaged in learning in various ways, such as behaviourally - by actively using and creating materials; cognitively - by actively thinking, and constructing new meaning; and socially - actively engaging with others as collaborators and resources. Active learning helps students to integrate new material with what they already know. Meaning-making arises out of the experience of doing an activity. Students in the process of learning actively construct knowledge through interaction, reflection and personal experience of doing the activity. They link new knowledge with past learning and construct new meaning for themselves.

As active learning is designed to promote higher levels of student engagement, it can also show enhancement in student learning. In active learning classrooms, the teacher does not have total control. In many cases, students are the decision makers and are given the responsibility to decide what they want to learn and how they want to learn. It can also give freedom to each student to decide what learning outcome they would personally like to derive out of the activity. It can be a flexible environment – for example, the teacher could carefully design their sessions and plan to achieve certain outcomes and in responding to students' participation and engagement - demonstrating that both teaching sessions and outcomes alter considerably (but are no less effective) (Gradowski, et al., 1998). Active learning can transform a classroom from being monotonous to one in which each session is different and creative. When varied active learning strategies are employed in a classroom and adequate opportunities for social interaction are provided, it can lead to individual knowledge construction and social co-construction of knowledge.

Individual knowledge construction

Jean Piaget (cited in Bauman, et al., 1997) conceived the constructivist theory of cognitive development. He emphasised that children, adolescents and adults 'develop' rather

than receive knowledge from other individuals. He believed that learners construct their own 'reality' by means of experimenting with the environment. He perceived this process to be biological and predetermined. Educationists termed this belief as 'discovery learning.' Thus, Piaget viewed the teacher to be the 'guide on the side' who, by setting up activities, aided the learning process. The learner, through interaction and experimentation with the activities, would develop his understanding of himself and the world around him.

Social knowledge construction

Vygotsky (cited in Pound, 2008) built on Piaget's theory of individual constructivism to create social constructivism. He stated that the role of dialogue and social interaction is a key element of constructivist learning. He viewed learners as constructing knowledge together through social interaction with others (peers and other adults), and making meaning through their own skills and experiences. Social constructivism also includes the importance of thought, language, perception, self-reflection and the interplay with culture, process and content. Vygotsky and Bruner(Bruner 1986, 72-73) both emphasised the significant role of the teacher in the concept of 'zones of proximal development' or 'scaffolding') in the construction of knowledge (Pelech & Pieper, 2010). Bruner believed self-reflection is an important activity that helps the learner establish a relationship with himself and through social interaction with other people in his environment, and assists him in understanding his changing roles in these contexts. Development of sense of self is another indication of effective learning. Active learning is most likely to be successful when the learner individually constructs new meanings for himself, thus transforming himself personally. He also transforms himself by constructing new knowledge through interaction with other people in his environment.

Research question and aims

Researching active learning as a method of teaching, I learnt that it was a pedagogical approach informed by constructivist theories of learning. I was thus motivated to explore the theory of constructivism through active learning in a classroom in Mumbai.

Aims:
1. Exploring the role and meaning of active learning in academic literature.
2. Investigating how individual knowledge construction takes place in a classroom.
3. Investigating how social construction of knowledge takes place in a classroom.
4. Exploring the role of a teacher in facilitating active learning in a classroom.
5. Investigating the active learning process and its effects on student learning.
6. Exploring the role of active learning in supporting the teacher to achieve class objectives.

Context of the research

My research was conducted in the Bandra religious education centre in Mumbai, India. I taught unit 2 of the 'Ethics and Development Module' to grade eight students aged between 13 to 14 years. The classes were held once a week for the duration of five weeks, each comprising three hours with twenty minutes of break time between the classes. Around 18 students attended each session. My classes were observed by the class host teacher, who is also a current graduate of the 'Secondary teacher educator program' (STEP).

Methodology

Through my practise, theories of constructivism were put to test through active learning strategies to understand its practicality. The study was conducted over a period of

five classes of 15 hours with 18 students aged between 13 to 14 years. During this time, I implemented a series of intervention strategies to engage the students in active learning. This paper will mainly focus on two out of five active learning strategies that I implemented. They are audio-video (AV) resources and roleplays.

Data collection methods

Active learning can be best assessed in depth through qualitative data. To achieve triangulation of data, I employed four data collection methods to ensure validity and reliability:
1. Teacher journal (own reflections)
2. Field notes (external observers' oral and written feedback)
3. Student work (class activity response sheets, charts, etc.)
4. Student journal (reflection sheets)
5. Student interviews (audio recording)

Individual knowledge Construction using audio- visual resources:

The objectives of the class were:
a) To acquaint students with the ethics of self-help and support in Muslim societies of the past, and
b) To make them aware of the close relation between faith and the world which Muslim societies express through ethical endeavours.

Description of tasks and what happened?

The ethics of Islam invite Muslims to exercise their social responsibilities to ensure the well-being of their communities and societies. In Muslim traditions, we find the ethics of help expressed through both individual and institutional actions. I selected two video songs which were to be played, one in each to two groups of students. Fifteen students attended the class and were divided in two groups (Group A, which saw the video of the song 'Saving Me,' and Group B, which saw the video of the song 'We Are the World' for Haiti relief). After each song was shown, students were provided with individual worksheets with critical questions to make meaning of the song on their own. Baltzer (1996), in Rewitz (2008), has established that the majority of the students in a given classroom are visual learners. He also theorized that listeners will be more attentive in a class when they are engaged visually as well as aurally. LeeSing and Miles (1999), in Rewitz (2008), stated that perception and attention are factors that mediate learning. They theorized that if a student's perception and attention could be maximized, then the learning of the student would be enhanced.

AV Resource 'Saving Me': the first video 'Saving Me' shows a man being saved by another individual. After he is saved he realises that he could see a constant show of numbers above every individual which indicated the time they had until their last breath. He could not see any numbers above himself. However, he does receive one after he saves another woman who is about to die. The objective of showing this video to the students was to initiate their thoughts on the shortness and precious nature of life which is a gift to mankind from God. According to the verses of the Quran which the students had worked on in earlier classes, this gift was to be used for good deeds so that one may achieve salvation. Doing good deeds is also one of the ethics of Islam and, through this video, I intended to bring out students thoughts on this concept.

AV Resource 'We Are the World:' the second video features the song 'We Are the World' re-sung by various contemporary leading singers to spread awareness of the Haiti disaster in 2010. Through the song, the various artists urge people to think of the world as one humanity and come forth to help the people of Haiti. The video also features some of the

worst hit areas of Haiti and the plight of people. It encouraged people to come together to support the people of Haiti. Through this I wanted students to think about ways people come together to help others in need. The ethic of self-help and support is highlighted through the song. Thus through the song, I attempted to initiate feelings of care and motivation to support people who need help.

Social knowledge construction using A-V resources:

Role play has the potential to unleash student imagination and transport them to an imaginary world where they are able to devise a solution for their real world problems. This is one of the ways that students can see themselves as contributing members of society. It plays a major role in supporting students to imbibe ethic of care for humanity and an attitude of willingness to take action and bring change through personal endeavour.

The objectives of the class were:

a) To introduce students to the situation of Ismaili community at the dawn of the 20th century and some of the major issues they faced in different parts of the world, and

b) To help the pupils understand the role of the Imam in setting up the 'Agakhan Development Network' (AKDN) which is a group of development agencies that supports humanity in many ways.

Description of tasks and what happened

Fifteen students attended the class. Before the role play, students were taken through a discussion where they discussed various challenges faced by people all over the world, which were noted on the white board. The class also discussed the various non-government institutions (including the AKDN) which serve humanity and combat those challenges. Students were then divided into two groups to work on the role play. They were given the freedom to decide on one challenge as a class and through the role play present its solution. Both the groups had to work on the same challenge. The challenges were to be chosen from the list created from the discussion. The majority of students voted for '26/11/2008 terrorist attacks on Mumbai.' My observer and I each facilitated one group. I introduced the element of competition in the role play to make the class more engaging. The external observer played the role of a judge and give away the verdict to the group who brought about a better solution to the situation. Students came up with the script, dialogues, and plot by themselves and presented it. After the presentations, students of both groups were given the opportunity to ask the opposite group critical questions. After the class a debriefing activity was to be conducted and students were given reflection sheets to write.

Group A re-enacted the situation where terrorists take over the Taj Mahal hotel in Mumbai. They built an NGO called 'Yes we can' which collects money from politicians and celebrities in return of a promise to give them publicity which would boost their career. They use this money to fund an operation to rescue victims trapped in the hotel and take the terrorists into custody. Group A won the competition.

Group B re-enacted a scene at Leopold bar in Mumbai which was also taken over by the terrorists. They altered the real incident by depicting informed citizens at the bar who call the police who in turn come and take the two terrorists into custody.

Data analysis and discussion
How effective was individual and group work?

The theory of constructivism explains how knowledge and understanding are slowly constructed. It suggests that learning is an individual process. Each individual builds an 'idiosyncratic vision of reality' which is partly based on similar experiences but is shaped by

individuals' prior knowledge, understanding and experience (Pritchard & Woollard, 2010). Thus, as will be seen below, the learners, though exposed to similar learning content, depending on their prior experience with the subject and how they undertake activities, demonstrate a different interpretation and learning outcome.

How well did students learn on their own?

If students would have learned through the transmission model, they would have repeated everything that the teacher said and some would have used the teacher's own words to explain the concept of care and concern for humanity. However, the active learning process exposed students to the video, think on the questions given on the student worksheet and write their thoughts. Each student gave a different response to the questions on the student worksheet. This shows that the process of active learning has helped them to think on their own and relate the information (from the AV resources) to their own past experiences. Knowledge construction, according to Piaget (cited in Moore, 2000), is a process through which individuals each with their prior set of experiences interact with their physical and social environments, transform themselves to make a new sense of the world and develop in the way they think and perceive. Below is the review of student responses that shows that each student has learned something from the video and made meaning for themselves.

Many students expressed a feeling of sadness and shock seeing the plight of the people of Haiti. Some realised the comforts they were blessed with and made up their minds to make donations for Haiti. This shows that the students were emotionally affected by the videos. A few expressed being inspired by the awareness created by the celebrities and realised that it is possible to also create awareness through such initiatives. One student was so motivated that he tried to reach out to the people of Haiti through an Internet game, - 'Farmville'. This behaviour shows that students were inspired and feeling of care and compassion for fellow brethren seems to have developed in their hearts. Individually, two students made practical plans on helping Haiti people. These kinds of responses show traces of thought process and self-reflection. Through self-reflection, the learner establishes a relationship with oneself and his environment (Bruner, 1986). Students have thought of the present environment in which they have known institutions which work for humanitarian causes. One student had made that connection of informing AKDN and seeking their help, while another student came up with similar thought of creating an institution like 'Ismailia helping society, which will help the people of Haiti. The video of the song 'Saving Me' also brought about intense feelings where two students went beyond practicality to say that they would contribute their property and reading skills to the needy. Overall, these responses demonstrates that the active learning process has brought about cognitive, affective and behavioural transformation in the learners. There were also students who seemed to have given general answers which may suggest that the active learning cycle needs to be repeated with a different pedagogy. It could also be possible that some students may be mentally distracted during the class and thus may have not been able to connect the videos to their past learning experiences.

How well did students learn in a group?

Role plays and mind maps both gave students the opportunity to express themselves in different mediums other than written work. Vygotsky (Vygotsky, 1962, in Pound, 2008) emphasized the significant role language plays in the development of abstract thought. Learners construct knowledge together through social interaction with peers and other adults and construct meaning through their own skills and experiences. Discussions within the group in the planning period demonstrated that students were thinking and expressing themselves. Ideas being originated, developed, rejected and re-accepted displayed social,

cognitive and behavioural collaboration and processing of information to personalise and build new knowledge through co-construction. Students came up with different outputs. There were two different role plays with different perspectives and solutions. This shows that students active engagement in learning. This proves the success of the active learning cycle. Also, some students expressed that they found the activities 'interesting' and they enjoyed group work. In role play, students were given the independence to choose the situations they found interesting. They were given complete freedom to choose the setting, roles, script and manoeuvre of the situation to present the solution. I believe this is what brought about participation and engagement in students. In my context (India), students in secular settings are not usually given such opportunities. Active learning entails teachers giving up their authority and learners taking up the responsibility of their own learning, where learners make decisions (Watkins, 2007). They make decisions on what they want to learn and how they want to learn it. The presentations of the role plays and showed that active learning strategies were effective. However, the most important role of implementing active learning strategies is that it should help learners make meaning for themselves from the activities. Below is an analysis of students' responses given in reflection sheets about their learning and meaning-making from each of the activities they were exposed to after their interaction with the content of the subject, the active learning pedagogy and group work.

Students were able to relate with the role that they were playing and thus they could easily realise the moral and ethical outcomes through feelings and experiencing the situation themselves. Student G writes, "I learned that killing people is a sin and also that it is very hard to save people's lives." "Drama is a shared and cooperative activity which fires the collective and individual imagination" (Baldwin & Fleming 2003, p. 7). It activates the learner's imagination and transports them to an imaginary world where they get an opportunity to solve the problem/challenge that they are enacting. This act empowers them as it liberates them from their own inhibitions and constraints and limitations. They experience the freedom to be someone else, and, by acting as the other, they connect to the other's feelings and experiences. Students, by acting as the victim or terrorist, felt the emotion which otherwise might have been difficult to explore. Student H writes, "I learned about the challenges faced by the targets in a terrorist attack and the police." Student G wrote, "I was the commander and I killed the terrorist, but I was dead too. My team won." The mind, body and emotions are given the opportunity to connect and function together rather than separately, enabling children to make all round and interconnecting sense of their experiences and learning (Baldwin & Fleming 2003, p. 7) 2003, 7). As orally expressed by student A, "Playing the role of a victim, I learned to keep faith in God in difficult situations and find strength to save others at the risk of my life."

Factors that helped implement successful active learning strategies
<u>Student Autonomy</u>

The presentations of the role plays showed that active learning strategies were effective. Coming from an Asian background and facilitating students from the same background, it was difficult for me to trust them to take responsibility of their own learning. As a teacher, for successful implementation of active learning strategies, I had to let go of my inhibitions and allow myself to trust them to guide their own learning. An interesting comment was made by a student A while presenting the role play. "... it helped me learn better and it was much more fun, compared to the old fashioned way of reading and by hearting. It made me feel as though I was an equal part of the class as my baima (teacher)." This made me realise that students in my context appreciate autonomy and are able to take

responsibility for their own learning. Student autonomy is one of the goals of education; it is an approach to educational practice which aims to give responsibility to students for what and how they learn. To be effective learners in higher education and subsequent employment, the attributes of autonomous learners are highly desirable. Giving them space and opportunity to practice autonomy in the classroom can be the first step towards complete autonomy and being effective learners (Boud, 1981).

Learner engagement and involvement
As suggested by my external observer, I used strategies like group division, pairing, kinaesthetic activities, freedom to present, etc. and it did bring positive results. I realised that the success of an activity is maximised when the students also enjoy it.

Scaffolding or the 'Zone of proximal development' (ZPD)
As stated by Vygotsky (in Wood, 1998, p. 26), Zone of proximal development (ZPD) "refers to the 'gap' that exists for an individual (child or adult) between what he is able to do alone and what he can achieve with help from one more individual who is more knowledgeable or skilled than himself." As an informed teacher, I prepared myself with all areas of knowledge that may be encountered during my classes and twice in the five practicum classes. I experienced 'teaching moments' which I grasped and helped scaffold students learning.

Challenges that hindered active learning
There were many challenges, too, which helped shaped my learning. From my analysis, I realise that areas like time management, choice of content and significance of completing the process of active learning are among the few areas I need to improve to bring about effective learning and achievement of class objectives.

Critical Questioning
Facilitating a constructivist classroom requires one to ask qualitative, thoughtful and critical questions which have the power to engage all students in thinking, talking and making meaning of concepts (Walsh & Sattes, 2005). The teacher plays one of the most crucial roles in active learning. Through her knowledge, the teacher guides learners to make meaning of the activity, content and process. I also realised that I needed to learn critical questioning without which student learning is limited and only surface level. Probing students with higher order questions would have led to deep thought, reflection and effective learning. This would further enhance a learner's knowledge. This one of the areas I need practice and study.

Teacher as time – keeper in the active learning process
The active learning cycle needs to be completed so that students gain maximum benefit from the process. The process involves four stages: Planning for the class, implementation of the plan in class, reflection and gaining new learning and finally and re-application of the learning back in class. Reflections from my teacher journal and my observer's feedback made me try various measures to complete activities in its allotted time in class. However, few objectives like understanding the working of AKDN and the role of the Imam were not given as much time required for students to grasp them effectively. However as my research also required processes like authorising students to lead class, discussion time etc., it led to exceeding the allotted class time.

Need for an assessment tool:

In this research, I have tried to analyse the effectiveness of my practice by analysing students' responses based on my own understanding and support of literature in the field. In the future, I would enhance my practice by making my data more reliable and accurate by administering an assessment tool.

Findings

The findings suggest that in both situations (learning on their own as well as with others), students responded to the active learning strategies as enhancement in their learning was evident from their responses.

Detailed findings related to intervention

My findings indicate that students learn effectively, both on their own as well as with others. After students were exposed to the content and process of active learning, I found reflective questions aided them to think on their own and learn, whereas, in a group, students learned through interaction with other. Students learn different outcomes in different settings. It was found that learning acquired on their own was more personal and cognitive. Students were more reflective as they depended on their past experiences and their responses were subject-related (based on the content shown in the video). Whereas in learning with others, as students relied on each other, their learning was more behavioural and social. Student responses in learning with others not only included knowledge gained through the content and process of learning, but students also reported on attributes like team spirit, cooperation, acknowledging others perspectives and acceptance of learning from each other. Thus, it can be said that, while learning on their own, students tend to reflect on selves and grow cognitively, and intra-personally identifying their own personal characteristics and potentials, whereas learning with others helps student imbibe social characteristics and develops inter-personal skills.

Individually as well as socially, students have exhibited learning, and the students' reflections indicate that they enjoy learning more in groups. Reflecting on my classes too, I have observed that when students enjoy a class, learning is more effective. This has led me to constantly look out for strategies which not only help me achieve my class objectives, but are also 'fun' according to students. Among the five different active learning strategies adopted for the practicum classes, most of the students enjoyed the group activities which involved cooperation and team work, i.e. role play. I believe partly because it induced an element of competition between the groups which acted as an external motivation for students.

Conclusion

This research has been a landmark in my development from a teacher to a teacher researcher. This journey helped me explore the various facets of learning by engaging students' heart, mind, and body through cognitive, social and behavioural active learning strategies. The learnings I derived from my research has helped me understand myself, my students, and the learning process and helped me extend to community of learners all over the world. I recommend educational researchers replicate this research in their contexts or build it further through their experiences.

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