



Perception of Secondary School Teachers About Constructivism

KEYWORDS

Dr. Umme Kulsum

Professor & UGC post Doctoral Research Awardee, Dept. of Education Bangalore University, Bangalore

The importance of teachers, particularly at school level, hardly needs to be over emphasised in view of the distinctive roles and functions expected of them in the exclusive context of the placement of schools and unique nature of children attending them. The teachers roles and functions have to be seen in the light of the "effortless and instant gratification offered by the media" as it is brought out in the UNESCO report, *Learning: The Treasure Within* (1996, pp.142-43). The roles of teachers have to stand up to the expectations of the educated and informed parents in the urban areas particularly in keeping with the knowledge explosion. In rural areas their roles and functions have to become sensitive to the needs of children who are more captive and who have limited opportunities to alternative sources of information and learning. Both for the rural and urban children, the content competency and pedagogical skills have to keep on fostering in view of the developments occurring in these fields. For example in Karnataka the syllabus from 1st standard to the 10th standard has been upgraded in the light of the National Curriculum Framework (2009). The teachers teaching classes from 1st standard to 7th standard have to equip themselves to meet the demands of this up gradation. The onslaughts of new technologies (computer assisted learning), new methods of teaching (models of teaching) and the new concepts (joyful learning) that have influenced teaching –learning process demand the teachers at the primary level to cope with. Yet another influence of making education relevant to social needs and to the needs of children warrant them to be more dynamic. For example, the UNESCO has been advocating instruction in 'preventive education' (education in matters pertaining to AIDS, sexually transmitted diseases etc.). The ideas of removing gender bias to promote equality of sexes, the need to value orient education, the need to make the knowledge children bring to school as a starting point for their learning (as envisaged in the UNESCO report on *Learning: The Treasure Within*, (1996, p. 143). The requirements to meet the needs of multi-grade teaching, the learning of competency based teaching advocated in the MLL projects; the implications of continuous and comprehensive evaluation coupled with their ever expanding roles make them to be more and more dynamic.

The UNESCO Commission Report, '*Learning: The Treasure Within*' (1996, pp.141-142) is apt in reiterating the comprehensive nature of the roles and functions of teachers thus: 'the importance of the role of the teacher as an agent of change, promoting understanding and tolerance, has never been more obvious than today. It is likely to become more critical in the twenty-first century... Improving the Quality of education depends on first improving the recruitment, training, Social status and conditions of work of teachers; they need the appropriate Knowledge, skills, personal characteristics, professional prospects and Motivation if

they are to meet the expectations placed upon them.' The discharge of these functions effectively; the teachers at the elementary school level requires a good exposure to both the pre-service training program and its renewal through a strong in-service program. Teacher qualifications and their quality positively influence learning of children.

School education plays a pivotal role in the lives of individuals. The Indian constitution provides for the fundamental right to education to all children in the age group of 6-14 years vide the 86th constitutional (Amendment) Act, 2002. The National Policy on Education (1986) and programme of Action of revised national policy education (1992) have also given top priority to the achievement of goals of universal elementary education. Currently Sarva Sikshya Abhiyan (SSA) is a major programme of government of India towards achieving the goals of Universal elementary education. Quality education must ensure all development of the learner, realization of their potential and ability to utilize their potential for achieving success in life. Social constructivism in this context views, each learner as unique individuals with their own needs and background

In the context of classroom, the constructivist view of learning can point towards a number of different teaching practices. In the most general sense, it usually means encouraging students to use active techniques (experiments, real-world problem solving) to create more knowledge and then to reflect on and talk about what they are doing and how their understanding is changing. The teacher makes sure she understands the students' preexisting conceptions, and guides the activity to address them and then build on them. In traditional education, teacher is the center of the knowledge and the authority to transfer knowledge to students verbally. Students mostly memorize what they are trying to learn. Constructivism tries to find out how students learn and describes that students understand and construct the knowledge of the world by their experiences (Karal & Sahin, 2008). Doolittle (1999), explains constructivism under eight topics as followings; Learning should take place in authentic and real-world environments, involve social negotiation and mediation, content and skills should be made relevant to the learner, content and skills should be understood within the framework of the learner's prior knowledge, students should be assessed formatively, serving to inform future learning experiences, students should be encouraged to become self-regulatory, self-mediated and self-aware, teachers serve primarily as guides and facilitators of learning, not instructors, and teachers should provide for and encourage multiple perspectives and representations of content.

Constructivist teachers encourage students to constantly assess how the activity is helping them gain understand-

ing. By questioning themselves and their strategies, students in the constructivist classroom ideally become "expert learners." This gives them ever-broadening tools to keep learning. With a well-planned classroom environment, the students learn- how to learn. Contrary to criticisms by some (conservative/traditional) educators, constructivism does not dismiss the active role of the teacher or the value of expert knowledge. Constructivism modifies that role, so that teachers help students to construct knowledge rather than to reproduce a series of facts. The constructivist teacher provides tools such as problem-solving and inquiry-based learning activities with which students formulate and test their ideas, draw conclusions and inferences, and pool and convey their knowledge in a collaborative learning environment. Constructivism transforms the student from a passive recipient of information to an active participant in the learning process. Always guided by the teacher, students construct their knowledge actively rather than just mechanically ingesting knowledge from the teacher or the textbook.

Constructivism is also often misconstrued as a learning theory that compels students to "reinvent the wheel." In fact, constructivism taps into and triggers the student's innate curiosity about the world and how things work. Students do not reinvent the wheel but, rather, attempt to understand how it turns, how it functions. They become engaged by applying their existing knowledge and real-world experience, learning to hypothesize, testing their theories, and ultimately drawing conclusions from their findings. It is a philosophy of learning based on the concept that when individuals learn they do not passively acquire or absorb a new understanding. Instead, new information is actively assimilated into existing cognitive structures while simultaneously altering these structures. Therefore what individuals learn is always framed within the context of what they already know; each of us generates our own models and our own individual understanding of the world.

Here are some characteristics of Constructivism:

1. The learner is emphasized over the teacher.
2. Learning is a process of cognitive construction.
3. Learning takes place best through active manipulation.
4. New learning begins by activating previous understanding.
5. Learning takes place best in environments that are rich and complex.
6. Posing problems of emerging relevance increases authenticity and fosters motivation.
7. Whenever possible original source materials should be used over predigested summaries.
8. Social and cultural context are important to the understanding constructed by the learner.

Characteristics of constructivist teaching:

While there are many versions of the Constructivist framework, I have centered my philosophy and Constructivist teaching practices on the ideas of Brooks & Brooks (1993) and Vermette (2001). The guidelines for Constructivist classroom practices are:

1. Students take initiative and autonomy in the classroom.

It is the ideas, hypotheses, and questions of students that drive the classroom.

2. Class curriculum and class activities revolve around the concept of solving an authentic, messy, and ill-defined problem that is not easily solved, and that may have more than one solution.
3. Students not only interact with textbooks, they interact with raw data, primary resources, the teacher, and with each other. Students are often working in teams. This is the norm, not the rule.
4. Communication in the classroom is characterized by discourse. There is constant give and take where phrases such as "What is your take on this?", "What is your conclusion?", "What is your prediction?", "Will you break down what you have just said into smaller pieces?", "Explain to your partner". Why don't you ask your partner?", and "I want you to create a document that"
5. Much of student work is done in pairs.
6. Student thoughts initiate, sustain, and conclude all classes.
7. The role of the teacher and of teacher questions is to guide and coach. Teacher questions, in an open-ended format, are intended to provide opportunities for students to expand on their initial thoughts.
8. The class environment is structured so that they are given many opportunities to create hypotheses, encounter contradictions to these, and then re-construct their beliefs and hypotheses.
9. Student experiences and thoughts spiral through a hierarchy of knowledge. That is, they learn through their senses, create concepts, modify and synthesize concepts, and then evaluate their learning through meta-cognitive processes.

Constructivism is basically a theory which is based on observation and scientific study- about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we have to reconcile it with our previous ideas and experience, maybe changing what we believe, or maybe discarding the new information as irrelevant. In any case, we are active creators of our own knowledge. To do this, we must ask question, explore, and assess what we know as teachers. The present investigation tried to survey the **Perceptions of Secondary School Teachers about Constructivism**. The perceptions of secondary school teachers about constructivism were quantified by developing a scale. To this end, the study provided answers to the following research question:

1. What is the mean perception of secondary school teachers about constructivism?
2. Is there any significant difference between the perception of male/female teachers with different qualification teaching different school subjects, marital status, age levels and teaching experience levels, rural and urban secondary schools teachers' perceptions about constructivism?

Method

This research is a descriptive field study. Data was collected in the 2007-2008 academic year.

Sample: Participants were 200 teachers drawn from rural and urban secondary schools of Bangalore. The mean age of the participants is 28.5 years of which 63.3% of the sample is female and 36.7% is male teachers drawn from Secondary schools of Bangalore.

Instrument: Teachers' perceptions about constructivism developed for the present investigation was used in the study. The scale was developed incorporating constructivist learning in the literature. The participants were asked to indicate the sufficiency of teachers to comply with constructivism they attached to each item on a four point scale from **always (4), sometimes (3), rarely (2), to never (1)**. Altogether 58 items were finalized under four dimensions. The four dimensions which evaluates teachers' use of constructivist education are:

1. **Dimension about students:** Teachers should know the characteristics, needs, strengths of their students. This factor includes the cognitive, physical, social and emotional characteristics of the students. Under this dimension 14 items were finalized.

2. **Teaching organization:** This dimension of the scale had 18 items related with curriculum and planning. It explains how to develop materials and teaching plans to provide effective teaching environment.

3. **Dimension about teaching:** This dimension focuses on the teaching style of the teacher, classroom management, cognitive and physical activities in the classroom, motivation, individual differences, and communication with the students with 16 items

4. **Setting the stage:** This part of the scale includes objectivity in the assessment process, the quality of the assessment, giving feedback and types of the assessment techniques with 10 items.

Results and Discussion:

The major findings of the study are summarized as follows: First, the differences in perception about constructivism of teachers at secondary school level were discussed. This is followed by teachers' views about constructivism as a total.

Table 1: Mean Perception score of Secondary School Teachers about Constructivism.

Groups	Urban School Teachers	Rural School Teachers
Male teachers	124.60	121.75
Female teachers	131.80	127.90
Older teachers	120.60	110.90
Younger teachers	134.50	127.60
Married teachers	122.87	120.90
Unmarried teachers	131.20	136.78
Teachers with Required qualifications	120.90	126.85
Teachers with more Than required Qualification	142.35	137.30
Teaching of Language	140.90	138.75
Teaching of Mathematics	135.75	129.60
Teaching of Science	158.65	168.70
Total mean perception	133.10	131.55

From the values given in table 1 it can be found that the highest mean perception of constructivism was reported by teachers from rural secondary schools (M=168.70) and urban schools (M=158.65) in the teaching of science. The lowest mean perception of constructivism was reported by older urban secondary teachers (M=120.60) followed by rural unmarried teachers from secondary (M=120.90) respectively. The total mean perception of urban teachers about constructivism was reported to be higher (M=133.10) compared to their rural counterparts (M=131.55) respectively. This can be attributed to the better exposures and facilities provided to urban secondary school teacher.

When the mean constructivism perception scores of secondary school teachers in different school subjects like language, mathematics and science were computed, it was found that highest mean score was found in the teaching of science (M=163.67) followed by language teaching (M=139.82) respectively. The lowest mean constructivism perception score was reported by secondary teachers teaching mathematics (M=132.67).

Table 2: Mean Perception Scores of Secondary School Teachers Teaching Language, Mathematics and Science in Four Dimensions of Constructivism

Sl. No.	Dimensions	Language	Mathematics	Science	Total
1.	Students	32.67	32.60	43.80	109.07
2.	Teaching Organization	34.50	38.70	41.50	114.70
3.	Teaching	36.90	38.60	40.30	115.80
4.	Setting the Stage	35.75	22.77	58.07	116.59
	Total Score	139.82	132.67	163.67	

It is interesting to study the mean differences in the four areas of constructivism perception of secondary school teachers. The trend of results seems to go together with the total mean constructivism and four dimensions too. The mean perceptions scores in all the four dimensions of constructivism namely students, teaching organization, teaching and setting the stage for the teaching of science was found to be the highest followed by languages and mathematics teaching at secondary school level respectively. This trend of results can be attributed to the nature of the curriculum and methods of teaching of science. At secondary school level teaching and learning of science demands innovative teaching strategies with lot of learner participation and involvement. Problem solving techniques and project methods of teaching are the demands of teaching science curriculum. In view of this innovative and need based science curriculum at secondary school level, the mean constructivism perception scores of secondary school teachers in the teaching of science was reported to be higher when compared with the teaching of languages and mathematics. As far as the lowest mean constructivism perception scores of secondary school teachers in the teaching of mathematics was concerned it can be inferred that the curriculum of mathematics at secondary level need to be made more need based, innovative and creative by including more illustrations and life examples, so that learner first of all recognizes the need for learning, enjoy learning process with involvement and participation in the whole learning process. Then the teachers can follow the constructivist philosophy for the teaching-learning of mathematics at school level. The teacher provides tools such as problem-solving and inquiry-based learning activities with

which students formulate and test their ideas, draw conclusions and inferences, and pool and convey their knowledge in a collaborative learning environment. Constructivism transforms the student from a passive recipient of information to an active participant in the learning process. Always guided by the teacher, students construct their knowledge actively rather than just mechanically ingesting knowledge from the teacher or the textbook.

One important point in constructivist approach is to let children discover the knowledge themselves. While Constructivism is a philosophy of how one learns, it is very crucial to have a delivery instrument that consolidates many of the Constructivist practices that have been known to successfully help students create knowledge. Problem based learning is one such instrument. Not only does Problem based learning enable teachers to deliver the Constructivist philosophy, as research has documented its effectiveness in many studies. With regard to the last dimension of the scale namely, setting the stage was concerned, it was noted that the mean score in this dimension was highest, indicating that at secondary level teachers have taken all precaution and care not only to assess learner performance, but also objectivity in the assessment process, the quality of the assessment, giving feedback and types of the assessment techniques. Quality education must ensure all development of the learner, realization of their potential and ability to utilize their potential for achieving success in life.

Implications of the Study:

The aim of the study is to investigate the teachers' perceptions about the constructivism theory. When we look at the dimension about students, students' characteristics and teaching organization and setting stage for teaching languages, mathematics and science the school teachers should perceive the need and importance to know students' individual differences and students' readiness as important indicators pointed out in constructivism. This reason should further strengthened, when school teachers teach mathematics, where in they need to give more importance and emphasis to individual differences, experiences and student-teacher, and student-student interaction in a classroom. Further these school teachers teaching mathematics and languages need to be identified with teaching objectives and to plan lessons according to students' needs and interest. They should also consider students' interest, needs and teaching objectives as part of the constructivist view. These findings were supported by results of the dimension about students in the study.

REFERENCE

1. Brooks, J. & Brooks, M. (1993). In search of understanding: The case for constructivist classrooms. Alexandria, VA: Association for Supervision and Curriculum Development. | 2. Doolittle, P.E. (2007). Constructivism and online education, In proceedings of online Conference on teaching online in higher education, Fort | 3. Karal, H., Sahin, Z. (2008). Classroom teacher's point of view about educational system based on constructivist theory that is model of multiple intelligences, In proceedings of international educational technology conference (IETC), Eskisehir, Turkey, 475-480 | 4. Ministry of Human Resource Development, National Policy on Education-1986, New Delhi. | 5. NCERT, Education and National Development: A Report of the Education Commission- 1964-66, New Delhi, 1970. | 6. NCTE, Curriculum Framework for Quality Teacher Education, New Delhi, 1998. | 7. Vernon, D.T. & Blake, R.L. (1993). Does problem-based learning work? A meta-analysis of evaluative research. Academic Medicine, 68(7), 550-563. | 8. UNESCO, (1996) Learning: The Treasure Within, Report to UNESCO of the International Commission for Education for the Twenty-first centuries, Paris. | 9. World Bank, Education Sector Policy Paper. Washington, D.C., April 1980.