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Secondary School Teachers' Awareness of Bringing Constructivist Approaches in Classroom Teaching and Learning

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Abstract

In alignment with global research, there is growing consensus that education systems must shift towards learner-centered curricula and constructivist approaches (CAs) of teaching. As the CA is a relatively new concept that has been incorporated only recently in the curriculum of teacher education courses across the country, adopting this approach in real classroom situations seems a challenging task for the teachers. The use of this new approach in teaching-learning situations depends on teachers' awareness of it. In this context, the present study aimed to answer the question "Are the secondary school teachers aware of CAs for teaching-learning?" Data were collected from 105 randomly selected secondary school teachers using the Constructivist Approaches Awareness Questionnaire (CAAQ). The findings revealed that teachers (above 50% of respondents) lacked a deeper understanding of the teacher's and learner's roles within a constructivist classroom. Moreover, awareness regarding critical aspects such as constructivist curriculum design and assessment methods was limited. The study further found that statistically no significant difference in the mean scores of CAs awareness of secondary school teachers regarding teaching experience (less than 10 years- 23.93, more than ten years 24.76), the educational boards they served under (UPMSP- 25.43, CBSE-22.89), and gender (Male-25.44, Female- 22.93) had no statistically significant effect on teachers' awareness of constructivist approaches at 0.05 level of significance. It is expected that the findings of the study will help curriculum planners to make the needed changes in the content of textbooks and refinement of the curriculum. The study will also help in exploring the ways and means of enhancing teaching-learning skills within a constructivist framework.

Keywords: ***Awareness, Constructivist approaches, Constructivism, Secondary Schools, Teachers, Teaching experience.***

Background

Education is fundamentally a process of a child's holistic development and multidimensional learning (Krishnaiah, 2015). An effective educational experience involves the active participation of the teacher as a facilitator, the learner as a meaning-maker, and the school as an enabling environment (Behar, 2014; UNESCO, 1993). However, despite such progressive perspectives, Indian schools often emphasize content coverage and promote rote memorization, thereby limiting opportunities for creative thinking and learner engagement (Dager & Yadav, 2016). As Dager and Yadav further noted, "most of the time, during the teaching-learning process, instruction remains unilateral which is considered to be an orthodox activity" (p. 1). Franzoni and Assar (2009) also observed that rote learning and memorization continue to dominate the educational landscape across all levels from primary to higher education. This is largely because many teachers perceive learners as blank slates and focus on filling their minds with facts and information (Vaishali, 2020), without adequately considering students' needs, interests, or abilities (Jonassen, 1994). Moreover, a number of teachers resist adopting new practices that promote active learning, inquiry, and critical thinking, often due to reluctance or lack of motivation (Davis, 2003; NAS, 2006; NSB, 2007). These educators tend to rely exclusively on textbooks and believe effective teaching is achieved through the teacher's role as an authority figure and source of knowledge (Berberoglu, 2010). As a result, traditional instructional methods such as lecturing, drill, and rote practice persist across all stages of schooling (Fischer-Mueller & Zeidler, 2002). Although these traditional methods may benefit some learners (Sharma, 2006), they frequently overlook individual differences in background knowledge, learning styles, and cognitive readiness, which are critical for meaningful and inclusive learning experiences (Bredo, 1997).

As UNESCO (2021) argues

Together, teachers and students need to form a community of knowledge-seekers and builders nourished by and contributing to humanity's knowledge commons. This entails thinking about what exists and what can be built and acknowledging that everyone, teachers and students alike, has the right to see themselves as capable of generating knowledge with others.....transformational pedagogical encounters enable dialogue with

classmates, peers and community members. The art, science, and craft of teaching is wielded effectively by teachers who give students opportunities to explore, create and interact with the known and the unknown, nurturing curiosity and interest. (p. 51)

Therefore, the need arises to adopting the CAs which is more focused on innovative activities and knowledge acquisition and providing equal opportunities (Bhattcharjee, 2015) to all learners for making their learning meaningful and permanent. Researches also show that learners instructed by CAs had higher scores than the learners who were exposed to traditional method of teaching (Sridevi, 2008; Jameela, 2012; Chowdhury, 2016). CAs encourage the learners to construct own understanding, proposed activities based on real life experiences (Simpson, 2002) and facilitate with ample of opportunities to reflect, search and use their capacity and take initiatives for being creative. As the National Curriculum Framework [NCF] (2005) argued that the aim of school education should not be only to providing lots of information to passive students but to create such a learning environment that can assist them to discover the knowledge related to their surroundings and suggests using CAs to improve learning outcomes and it will be possible only by shifting the focus of teaching learning process on concept development and deep understanding. CAs based on the principles of constructivism (Jha, 2009), are pretty different from the conventional teaching-learning approaches. In the traditional approach, the teaching mainly focuses on transferring knowledge from an expert teacher to a novice student (Jia, 2010). While, CAs is emphasizing that knowledge is not something that teacher can transfer in the classroom to students instead, it needs to be constructed by learners through active participation in the learning process (Singh & Yaduvanshi, 2015). Vaishali and Misra (2018) also observed as CAs in education accepts the learner as a knowledge constructor and the teacher as a guide and a facilitator who helps learners to construct knowledge (Sharma, 2006; Vaishali and Misra, 2019) and also encourage them to actively participating in the learning process (Sharma & Gupta 2016). Rhodes and Bellamy (1999) explains

A teacher tells, a facilitator asks; a teacher lectures from the front, a facilitator supports from the back; a teacher gives answers according to a set curriculum, a facilitator provides guidelines and creates the environment for the learner to arrive at

his or her own conclusions; a teacher mostly gives a monologue, a facilitator is in continuous dialogue with the learners (p. 17). As the emphasis switches to a more active teaching process a teacher has to act in a different way for being a facilitator (Brownstein, 2001) and must take initiative to find innovative activities for engaging students in meaningful learning and enhance their participation in teaching-learning processes (Wenger, 1998). As Darsih (2018) found that several efforts done by teachers in constructivist teaching are first, teachers are not a mere conveyor of information. It is the students who do the hard messy work of learning, they are not passive recipients of knowledge. Second, teachers give autonomy and responsibility to students for material they learn and their own learning in general. Third, teachers use highly engaging core content that meets the needs of the students. Fourth, teachers give feedback to help students to improve. Last, teachers utilize multiple teaching techniques appropriate for student learning goals (p.41). Higgs (1988), also noted that during the teaching-learning process, in order to help learners how to learn independently and effectively, the teacher play the role of a manager and creates a supportive and stimulating learning environment to achieve learning goals that are based on learners' interests, abilities, attitudes, aspirations, and motivations (Sridevi, 2008; Yaduvanshi & Singh, 2015),). Indeed, the CAs is credited for a shift of power from the "expert teacher" to the "student learner" (Sharma, 2017). Research reveals (Jonassen, 1999, as cited in Suregnor, 2010) that a learning environment based on CAs provide multiple representations of reality, case-based learning instead of predetermined sequences of instruction, flexibility and motivation to the students (Vaishali and Misra, 2020) and also fosters their creativity and versatility (Ball & Bass, 2000; Lawson, 2010) to encourage knowledge construction through the prior experiences inserted of knowledge reproduction (Grabe & Grabe, 1998). It is evident that in CAs the teacher is mainly a facilitator or coach as they are supposed to provide help to extend learners' zone of proximal development to guide, stimulate and provoke the student's critical thinking (Sims, 2002). Considering that teachers are instrumental to any education system and the use and success of CAs in teaching and learning mainly depends on their awareness of this approach, the present study assessed secondary school teachers' awareness of bringing constructivist

approaches in classroom teaching and learning.

Objectives

1. To assess secondary school teachers' awareness of bringing constructivist approaches in classroom teaching and learning in relation to constructivist principles, the role of teacher, role of learner, classroom environment, teaching-learning methods, curriculum, and assessment.
2. To compare secondary school teachers' awareness about bringing constructivist approaches in classroom teaching and learning in relation to their different length of teaching experiences, different boards they are teaching in, and gender.

Assumptions and Hypotheses

1. Secondary school teachers are aware of bringing constructivist approaches in classroom teaching and learning in relation to constructivist principles, the role of teacher, role of learner, classroom environment, teaching-learning methods, curriculum, and assessment.
2. Secondary school teachers having different lengths of teaching experience (less than ten years and equal or more than ten years) do not differ significantly regarding their awareness of constructivist teaching and learning approaches.
3. Secondary school teachers of different boards (CBSE, MSPUP) do not differ significantly regarding their awareness of constructivist teaching and learning approaches.
4. Secondary school teachers in terms of gender (Male, Female) do not differ significantly regarding their awareness of practicing constructivist teaching and learning approaches.

Delimitations of the Study

Taking into consideration the time and resources at the disposal of the researcher, the present study was delimited on the following aspects:

1. The study is confined to district Bijnor only.
2. The study is confined to CBSE and UPMSP board-affiliated Schools only.
3. The study is confined only to teachers teaching in secondary schools only.

Methodology

Research Method:

The present study was undertaken to answer the question, Are the secondary school teachers aware of CAs to teaching and learning? It has been observed that the question can be answered only by dealing with teachers already entered in the profession and teaching in the classrooms

or any other platform. Considering this demand, the researcher has decided to use the normative survey method.

Research Design:

To fulfil the objectives of the study explanatory sequential design was used which is the integration of quantitative and qualitative research methods (Creswell, 1994). The intent of the explanatory sequential design is, to begin with, a quantitative strand and then conducts a second qualitative strand to explain the quantitative results (Best & Kahn, 2006).

Population and Sample:

The study was confined to teachers teaching the classes of 9thto 12th standard in schools affiliated to Madhayamik Shiksha Parishad Uttar Pradesh (MSPUP) and Central Board of Secondary Education (CBSE) in block Kiratpur in district Bijnor of West Uttar Pradesh, India. The data was collected from 9 schools of the same block, and stratified cluster random sampling was used for sampling purposes. In the given block, there were 20 schools (16-UPMSP, 4-CBSE). From these 20 schools, 9 schools (6-UPMSP, 3-CBSE) were randomly selected. And from these 9 schools, 118 teachers teaching the classes of 9th to12th were chosen randomly.

Research Instrument:

The data was collected with the help of the Constructivist Approaches Awareness Questionnaire (CAAQ) developed and standardized by researchers. Considering the nature of the developed questionnaire and items, the researcher noted that Cronbach Alpha is the best available method to determine the reliability of CAAQ. By using Cronbach Alpha, the reliability of CAAQ was found 0.960. Thus, the scale possesses a high level of reliability. To check the consistency of the questionnaire, item validity was assessed by calculating the corrected item-total correlation which was obtained through the correlation between the score of the item and the score on the total questionnaire excluding that particular item. The value of correlated item-total correlation for the questionnaire ranged from .328 to .786.

The questionnaire includes 51 items (Positive 30, Negative 21) covering different aspects of CAs, namely principles, the role of teacher, role of learner, classroom environment, teaching-learning methods, curriculum, and assessment. Researchers prepared both types of items, i.e., positive and negative, in each dimension (except teaching-learning methods) of CAAQ. The positive items gather direct information about secondary school teachers' awareness of CAs, and negative items are supposed to

cross-check the same information and minimize the chance of guessing.

The scoring for each preference for the positive item was 1 for 'Agree' and 0 for 'Disagree,' and for the negative item, it was in reverse order, which means 1 for 'Disagree' and 0 for 'Agree.' From the selected sample of 118, 105 teachers returned the filled questionnaire.

The present study also aimed to deal with qualitative data collected through interviews and document analysis. So, for the interview, a non-random stratified sample of 10 secondary school teachers was selected purposely. The selection of the participants was done based on their willingness and availability. To facilitate personal interviews an open-ended interview schedule contains ten statements was used.

Data Analysis and Results

The summary of teachers' responses about different aspects of CAs to teaching and learning is presented and analyzed from Tables 1 to 7. While comparing teachers' awareness about CAs in terms of different lengths of teaching experiences they have, various boards they are teaching in, and gender are presented in Tables 8, 9, and 10, respectively.

Table 1: Secondary School Teachers' Awareness for CAs to Teaching-learning under Different Items of the Dimension: Principles

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	A learner comes to the class with prior knowledge.	49	46.67
2	Constructivism believes that a learner is emotionally attached to their prior knowledge.	40	38.09
3	According to constructivism, learning is a social process.	35	33.33
4	According to constructivism, new knowledge results from the interaction between prior knowledge and the present circumstances.	39	37.14
5	The theory of constructivism is based on observation and scientific study.	54	51.42

6	Constructivism accepts that different types of knowledge related to the world are present in the outer surroundings of the learner.	61	58.09
7	Constructivism does not accept social and cultural background as an essential component of the learning process.	54	51.43
8	Constructivism is an umbrella term covering several learning theories.	42	40

***Negative Items (6, 7)**

Table 1 reveals that only 46.67%and 38.09% of teachers believe that learner comes to the class with prior knowledge and get emotionally attached to the same, respectively, and few teachers (33.33%) considered learning as a social process. 51.42% of teachers agreed that the theory of constructivism is based on observation and scientific study, while 40% of them think that constructivism is an umbrella term. Whereas, a good number of teachers (58.09%) agree with the notion that different types of knowledge related to the world are present in the outer surroundings of the learner, and 51.43%of them believe that constructivism does not accept social and cultural background as a critical component of the learning process. These findings are just opposite the notion of constructivism, which assumes that 'knowledge related to the world already exists in the mind of learner' and 'social and cultural backgrounds are important components of the learning process'(Crotty, 2003).These observations made it clear that teachers are not fully aware of the theory and principles of constructivism.

To validate these claims, the researchers conducted interviews with secondary school teachers to get their views about CAs. The majority of secondary school teachers opinioned that constructivism is based on observation and scientific study and covers different theories of learning. Almost all the teachers, that were interviewed, consider learning as a social process and also believe that students comes to the class with the prior knowledge and are emotionally attached to the same. Observations of two teachers on this issue are as follows:

"A pupil's previous experience influences their perception towards new stimuli. A teacher cannot easily change this." (T 1, Teaching in UPMSP)

"As I think, constructivism is learning or meaning making theory in which one constructs the knowledge on the basis of past experiences and learnsnew things." (T 7, Teaching in CBSE)

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Table 2: Secondary School Teachers' Awareness for CAs to Teaching-Learning Under Different Items of the Dimension: Role of Teacher

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	A Constructivist teacher does not give importance to the learner's previous knowledge.	62	59.05
2	A constructivist teacher mainly focuses on providing opportunities to construct new knowledge.	38	36.19
3	The work of a constructivist teacher is to arrange activities for the development of learners' analytical and synthetic abilities.	54	51.43
4	A constructivist teacher gives particular importance to 'teacher-centric' teaching-learning approaches.	63	60
5	A constructivist teacher places problematic situations and questions before the learner and helps them find their solutions.	40	38.09
6	A constructivist teacher primarily uses cognitive terminologies like classify and analyze during the teaching-learning process.	42	40
7	A constructivist teacher sees the learner as a 'blank slate.	61	58.09
8	In comparison to a constructivist teacher, a traditional teacher gives more freedom to the learner in the teaching-learning process.	60	57.14
9	Transferring knowledge to the learner is the main task of a constructivist teacher.	59	56.19
10	A constructive teacher devises their methods to deliver the lesson.	57	54.29
11	A constructivist teacher accepts the teacher's authority in the teaching-learning process.	47	44.76

*Negative Item (1, 4, 7, 8, 9, 10, 11)

It appears from Table 2 that 59.05% of teachers believe that constructivist teachers are not supposed to give importance to learners' prior knowledge, and 58.09 % of teachers agree that constructivist teachers envision learners as a 'blank slate.' Similarly, 56.19% of teachers believe that the main task of constructivist teachers is transferring knowledge to the learner. The majority (60%) also believe that constructivist teachers give particular importance to 'teacher-centric' methods, and 44.76% of teachers believe that constructivism accepts teachers' authority in the teaching-learning process. Surprisingly, all these notions are against the principles of constructivism. Indeed constructivism believes that 'every learner has some kind of previous knowledge and constructs the new one on the basis of previous knowledge' (Naylor and Keogh, 1999). Besides, constructivism 'accepts the authority of learner, gives preference to learner-centered methods and try to provide conducive/suitable environment in teaching-learning process. In constructivism teacher is 'assumed as a facilitator and not as a transmitter of knowledge (Ayers, 2010). Another point of concern is that only 36.19% of teachers agree with the statement that the role of a constructivist teacher is to provide a suitable environment for knowledge construction. And 38.09% of teachers accept that the work of a constructivist teacher is to give students the opportunity of self-learning through various types of actions and helps (if needed) and enabling learners to construct knowledge by communicating with each other. This analysis makes it clear that school teachers are not sure about the role of a constructivist teacher in the classroom.

Interview sessions validated the quantitative analysis. The statements from the following are relevant in this aspect

"*My job is to teach the content. If some students don't learn, it is their problem." (T 3, Teaching in UPMSP)*

Although, some teachers were having different views, and two of them said

"The main role of a teacher is to help students to analyse problems, investigate phenomena, encourage them to ask questions and answer them via experimental activities." (T 6, Teaching in UPMSP)

"Teacher should provide opportunities to learners to discuss and share their ideas freely to each other, ask questions, conduct experiments, and carry-on problem-solving activities." (T 10, Teaching in CBSE)

Table 3: Secondary School Teachers' Awareness for CAs to Teaching Learning Under Different Items of the Dimension: Role of Learner

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	A constructivist learner seeks opportunities for self-development according to their interests and needs.	57	54.29
2	A constructivist learner depends entirely on the help of a teacher to get the solution to any problem.	61	58.09
3	A constructivist learner does not rely on independent thinking.	69	65.71
4	Constructivist learners have competitive classroom behaviour.	59	56.19
5	In constructivist education, a learner is treated as a knowledge receptor.	54	51.43
6	A constructivist learner actively constructs their knowledge by own experiences.	52	49.52

***Negative Items (2, 3, 4, 5)**

Data mentioned in Table 3 portray that 54.29% of teachers believe that constructivist learners seek opportunities for self-development according to their interests and need to know the new facts by analyzing their prior knowledge. Similarly, 49.52% of teachers agree that constructivist learners actively construct their knowledge by their own experiences. Contrary to these beliefs, 58.09% of teachers think that constructivist learners depend entirely on the teacher's help to solve any problem. And a good number of teachers (56.19%) believe that constructivist learners have competitive classroom behaviour and do not rely on independent thinking (65.71). All these observations are against the principles of the curriculum, which advocates that 'constructivist learners' actively, independently and collaboratively construct their knowledge and sees

learners as 'constructor of knowledge instead of a receptor of knowledge' (Honebein, 1996; Sharma, 2006). These findings lead us to conclude that teachers are not sure about the role of a constructivist learner in the classrooms.

During interviews, the majority of the secondary school teachers believe that students are actively participating in meaning making process and constructing or reconstructing their own understanding. A teacher said

"Students construct their own knowledge and creates their own understanding, based upon the interaction of what they already know, believe and the phenomena or ideas with which they come into contact." (T 8, Teaching in CBSE)

But, few teachers still see learner as totally dependent on the knowledge of teacher. For example,

Rather than to think independently and generalize the concepts, it is more important for students to accept the statements of teachers' (T 5, Teaching in UPMSP)

A student learns better when he/she directly associate himself/herself with teacher's statement. So, the solution should be provided by the teachers only to resolve the problem. (T 9, Teaching in CBSE)

Table 4: Secondary School Teachers' Awareness for CAs to Teaching-learning under Different Items of the Dimension: Classroom Environment

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	Individual work by learners is the main characteristic of a constructivist classroom.	61	58.09
2	In a constructivist classroom, the learner moves from concrete to abstract.	43	40.95
3	Constructivist classroom gives more emphasis on theoretical knowledge rather than practical knowledge.	60	57.14
4	Teachers and learners continuously interact with each other in a constructivist classroom.	36	34.29
5	In a constructivist classroom, everyone has an equal chance to express their point of view.	48	45.71

6	In a constructivist classroom, assessment runs along with the teaching-learning process.	44	41.90
7	A constructivist classroom is autocratic.	55	52.38

***Negative Items (1, 3, 7)**

A look at the data presented in Table 4reveals that 40.95% of teachers believe that the learner moves from concrete to abstract in a constructivist classroom. Similarly, 41.90% of teachers think that assessment runs along with the teaching-learning process in a constructivist classroom. And, 45.71% of teachers believe that everyone has an equal chance to express their point of view in a constructivist classroom. On the other side, 52.38% of teachers agree that a constructivist classroom is autocratic. And surprisingly, 57.14% of teachers accept that the constructivist classroom emphasizes theoretical knowledge rather than practical knowledge.

In comparison, a constructivist classroom 'emphasizes practical knowledge and is supposed to be 'democratic in nature' (Papert, 1980). A good number of teachers (58.09%) believe that individual work by learners is the main characteristic of a constructivist classroom. But in reality, a constructivist classroom advocates for 'collaborative learning' (Jonassen, 1999). These conflicting observations of teachers clearly emphasize that they lack the required level of awareness to manage and run a constructivist classroom. Being ask about the characteristics of a constructivist classroom, almost two third of secondary school teachers reported that a constructivist classroom is a place where teacher and students continuously interact with each other, and students have freedom to ask question and share their ideas. The following statements make this notion more clear *"Interaction is necessary for learning. Students learn better when they are engaged in dialogues with teachers and other students." (T 8, Teaching in CBSE) "Constructivist classrooms are cognitive theatres, therefore, teachers should use manipulative material and hands-on/creative activities to promote learning" (T 1, Teaching in UPMSP)* Contrary to these views, one interviewee expressed *"Learning is an individual process in which a pupil constructs new consequences individually without the help of others and collaborative activities." (T 2, Teaching in UPMSP)*

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Table 5: Secondary School Teachers' Awareness for CAs to Teaching-learning under Different Items of the Dimension: Teaching-learning Methods

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	'Collaborative learning method' is a part of the constructivist teaching approach.	72	68.57
2	'Experiential learning' is helpful in constructivist teaching.	71	67.62
3	'Concept mapping approach' is an essential method of constructivist teaching.	66	64.71
4	'Dramatic method' is an integral part of constructivist teaching.	85	80.95
5	'Cooperative approach' is a constructivist teaching-learning approach.	89	84.76
6	According to constructivism, 'Brain-storming' is an essential step of teaching-learning.	45	42.86
7	'Flip classroom method' is based on principles of constructivist teaching.	75	71.43
8	In the constructivist approach, learners study the various aspects of any given problem or situation.	74	70.48
9	'Enquiry Based approach' is one of the best constructivist teaching-learning approaches.	78	74.29
10	Constructivist teaching mainly uses the 'Anchor instruction approach.'	68	64.76

Table 5 mirrors that 68.57% of teachers accept that 'collaborative learning is a part of constructivist teaching method. And 67.62% agree that constructivist teaching generally uses 'experiential learning. A good number of teachers (64.71%) also accept that the 'concept mapping approach' is an important constructivist teaching method, and the 'flip classroom method' is

based on constructivist learning principles (71.43). Similarly,74.29% of teachers believe that the 'inquiry-based approach is one of the best constructivist teaching-learning approaches. And 64.76% accept that constructivist teaching mainly uses 'anchor instruction approach'. On the other side, only 42.86% of teachers accept that according to constructivism, 'Brainstorming' is an essential step of the teaching-learning process. We can interpret these observations from two angles. One side shows that although many teachers know CAs, the other emphasizes that some still need briefing and information about constructivist teaching-learning in classrooms. The secondary school teachers, who were interviewed, accepted that different types of CAs are very important for teachers to make their teaching effective and easier and also for students to make their learning meaningful and comprehensive. But they also feel that sometimes it seems difficult to apply CAs in classroom setting. Following statements are relevant in this regard *"Experiential learning, a constructivist method, is one of the most preferred methods for knowledge acquisition and modification of preconceptions" (T 8, Teaching in CBSE). "The scientific inquiry of reality investigation is a natural learning method based on constructivist theory. That is why this method is suitable for every age learner and for any subject. I try a number of learner-centred methods (group work, discussion, brain storming project method, etc.) to seeks and command pupils' attention and to motivate them for participating in classroom activities. But I think that in contemporary education better and more sophisticated usage of these methods is not possible always." (T 10, Teaching in CBSE) "Many times, I try to use various methods in my classroom, but the restrictive curriculum made me unable to do the same." (T 3, Teaching in UPMSP) "Collaborative and cooperative methods help students to develop communication skills and help to foster creative ideas among students. Students also become more self-confident and can use their thoughts, ideas and attitudes (T 6, Teaching in UPMSP)."*

Table 6: Secondary School Teachers' Awareness for CAs to Teaching learning under Different Items of the Dimension: Curriculum

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	The constructivist curriculum usually focuses on activities.	45	42.86
2	Units of a constructivist curriculum are separate from each other.	65	61.90
3	Content of a constructivist curriculum is selected according to the abilities and qualifications of teachers.	68	64.76
4	A constructivist curriculum takes care of individual differences.	53	50.48

***Negative Items (2, 3)**

Data presented in Table 6 details that 42.86% of teachers think that the constructivist curriculum focuses on different activities to keep learners active. And the constructivist curriculum takes care of individual differences (50.48%). On the other side, 64.76% of teachers agree that the contents of a constructivist curriculum are selected according to the abilities and qualifications of teachers. And 61.90% of them think that units of a constructivist curriculum are separated from each other. These beliefs are contrary to the principles that a constructivist curriculum must revolve around learners' needs, interests, and abilities (Kumar, 2006) and the units of a curriculum must be interrelated. These findings indicate that teachers lack awareness about the characteristics of a constructivist curriculum and how to design it.

Interview sessions presented almost the similar picture. When asked about the constructivist curriculum, almost 60% of secondary school teachers reported that constructivist curriculum have scope to include all the activities that allows students to take part in learning process. They further agree that constructivist curriculum also gives them opportunity to visualize the connection of learned things with many aspects of life. And about one third of secondary school teachers, who were interviewed, believed that

constructivist curriculum ignores the need and interest of students.

Table 7: Secondary School Teachers' Awareness for CAs to Teaching-learning under Different Items of the Dimension: Assessment

SN.	Statement	Total Number of Teachers (105)	
		Agreed	
		f	%
1	Constructivism pays more attention to the 'process of acquiring knowledge than the 'process of constructing knowledge.	63	60
2	Constructivism focuses on how the learner learns by combining new knowledge with prior knowledge.	38	36.19
3	Constructivism emphasizes objective assessment.	61	58.09
4	Constructivism evaluates that how the learner uses constructed knowledge in real life.	33	31.43
5	Constructivism ideology supports summative assessment.	62	59.05
	***Negative Items (1, 3, 5)**		

A perusal of the data presented in Table 7 reveals that fewer (36.19%) teachers agreethat constructivism assessment focuses on how the learner learns by combining new knowledge with prior knowledge. And31.43% of teachers believe that constructivism evaluates the success of learners by judging that how they use constructed knowledge in real life. In contrast, many teachers (58.09%) accept that constructivism emphasizes objective assessment. And60% agree with the statement that constructivism pays more attention to the 'process of acquiring knowledge than the 'process of constructing knowledge. Both these observations are not true. As a fact,

constructivism prefers 'subjective assessment'and emphasizes 'construction of knowledge by learner' (Perkins, 1999).As for other notable consent, 59.05% of teachers agree that constructivist ideology supports the summative assessment. But in reality, constructivism emphasizes 'formative assessment'. These observations lead us to conclude that many teachers are not aware of the purpose and process of constructivist assessment.

During interviews, the majority of secondary school teachers accepted that constructivist assessment support objective and summative assessment and focus on how students acquire the information and learn facts.

"Yearly assessment is more necessary than continuous assessment to promote students in next classes." (T 4, Teaching in UPMSP)

Real assessment is based on students' performance during final exams. The written examinations give students a chance to present acquired information and memorize facts" (T 9, Teaching in CBSE). But two of them have different views:

Pupils do not need to learn facts only, but they have to be able to find these through various information sources (T 8, Teaching in CBSE).

"I use continuous comprehensive assessment in my class" (T 6, Teaching in CBSE)

Table 8: Comparison of the Mean of CAs Awareness' Scores of Secondary School Teachers having Different Lengths of Teaching Experience

Teaching Experience	N	Mean	Standard Deviation	t-value	Level of Significance
=/>10 Years	62	23.9355	8.54855	.470	.05
< 10 Years	43	24.7674	9.45374		

Table value with df (103) at .05= 1.98

Calculated value = .470 < 1.98

Analysis revealed that statistically, there is no significant difference in the mean scores of CAs awareness of secondary school teachers having different teaching experiences; hence, lengths of teaching experience have no significant impact on teachers' awareness for CAs. Teachers with teaching experience of fewer than ten years have a slightly higher mean score (24.76) than teachers with teaching experience equal to or more than ten years (23.93).

Table 9: Comparison of the Mean of CAs Awareness' Scores of Secondary School Teachers Teaching in Different Boards

Board	N	Mean	Standard Deviation	t-value	Level of Significance
UPMSP	57	25.4386	8.84594	1.467	.05
CBSE	48	22.8958	8.84678		

Table value with df (103) at .05= 1.98

Calculated value = 1.467 < 1.98

Analysis revealed statistically no significant difference in the mean scores of CAs awareness of secondary school teachers teaching in schools affiliated to different boards; hence, school boards have no significant impact on secondary school teachers' awareness regarding CAs. Teachers teaching in schools affiliated with UPMSP have a higher mean score (25.43) than teachers teaching in schools affiliated with CBSE (22.89).

Table 10: Comparison of the Mean of CAs Awareness' Scores of Secondary School Teachers in Terms of Gender

Gender	N	Mean	Standard Deviation	t-value	Level of Significance
Male	56	25.4464	8.93190	1.449	.05
Female	49	22.9388	8.75216		

Table value with df (103) at .05= 1.98

Calculated value = 1.449 < 1.98

Analysis revealed statistically no significant difference in the mean scores of CAs awareness of secondary school teachers regarding gender; hence gender has no significant impact on teachers' awareness of CAs. Male teachers have a higher mean score (25.44) than female teachers (22.93).

Discussion

Based on the above-presented analysis (from table 1 to table 7), it can be concluded that teachers' awareness about CAs differs in different aspects. Teachers are more aware of the principles of constructivism and different constructivist methods. But have less awareness about the role of a teacher and learners in a constructivist classroom environment. Teachers also lack profound aspects of CAs like constructivist curriculum and assessment. Most teachers support the claim that constructivism does not give importance to learners' prior knowledge. This finding supports the findings of Das (2015), who observed that teachers did not try to find learners' previous knowledge of relative concepts before sharing their understanding of the same and did not welcome to learner's initial response in the classroom teaching-learning process. These findings are similar to the results of studies of Mulugeta (2010) and Degnew (2017), revealing that most school teachers are not seeking the learners' previous experiences, not using CAs in their classroom teaching are unable to translate constructivist theory into practice. Nowadays, our education system is supposed to focus on learner-centered teaching-learning processes (Sharma, 2006). However, this study revealed that good numbers of teachers still favour 'teacher-centric' methods and accept 'teacher's authority in the teaching-learning process.

Similarly, a significantly lower percentage of teachers agree that a constructivist curriculum provides learners enough opportunities to construct their knowledge. The findings support the claim that several teachers still assume that they are the transmitter of knowledge and learner is a passive command receptor (Kalekar, n.d.). Martin (1994) and Vadeboncoeur (1997) also noted that teachers were not promoting CAs in their classroom teaching because of a lack of understanding about constructivism. Overall, the obtained results emphasize that most of the teachers included in the study have a low awareness of constructivist approaches. The probable

reason for this can be that the in-service training provided to the teachers for their professional development is not compatible with the emerging trends and methods (Rout & Behera, 2014) that also include constructive teaching and learning approaches.

Comparison (from table 8 to table 10) revealed that teaching experience, different boards they are teaching in, and gender have no significant impact on teachers' awareness of CAs. This finding agrees with the study of Akpan (2007), who found that secondary teacher's innovative strategies (including constructivist approaches) on complex concepts did not differ based on their years of exposure or experience. But mean scores indicated that secondary school teachers having teaching experience of less than ten years are more aware of CAs than those having more than ten years of teaching experience. The probable reason for this may be that new teachers have more information about the emerging methods and innovative teaching and learning techniques and prefer to attend professional development courses. Aydogdu and Selanik-Ay (2016) also found that less experienced school teachers were more aware and willing to use constructivist principles in their classrooms. In comparison, teachers with more experience are products of a traditional education system and cannot see themselves as applying another approach other than what they are being taught. The difference in secondary school teachers' CAs awareness based on the different boards (as mean scores revealed) of school may again be subject to more exposure and support from the schools facilitated by the government (as in the case of schools affiliated to MSPUP) to teachers in comparison to those who teach in private schools. This result follows a study conducted by Degnew (2017), which highlighted that private school teachers lack knowledge and skill of CAs to teaching. And again, based on mean scores, the study shows that male teachers are more aware than female teachers regarding their awareness of CAs. Similarly a study conducted by Krishnaiah (2015) also showed higher mean score of male teachers regarding awareness of following the CAs in their classroom teaching.

In the process of conducting the present study, the researcher could come across many areas which may deserve the attention of future researchers. In this context, the

following suggestions may help conduct further research related to the area of study:

1) A study may be taken up to find the students' attitude towards the use of constructivist approach in teaching and learning at different levels of education.
2) An experimental study may be conducted to see the effectiveness of the constructivist approach in teaching (of any subject) at the school level.
3) A study may be conducted taking secondary school teachers as a sample to know about their understanding of constructivist philosophy and its application to classroom teaching and classroom management.
4) A longitudinal study may be conducted to observe the learners' way of understanding the concepts and their reflection on various situations to which they may relate to or use in their real-life situations.
5) A study may also be conducted by way of evaluating the text books prescribed at the secondary level to see their proximity and scope for adopting the constructivist approach in classroom instruction.

Conclusion

The study investigated the CAs awareness of secondary school teachers and presented facts that most of teachers were aware of constructivism and different constructivist methods as well. But lack of awareness about the role of teacher and learner in a constructivist classroom environment. Teachers also lack profound aspects of CAs like constructivist curriculum and assessment. This result indicates that teachers need to be made aware of different CAs and how to use these in the best possible ways for educational benefits. It also emphasizes that teachers need to be ready to learn emerging trends and teaching methods and incorporate the same in the classroom settings. Needless to say, that the classes should be based on active learning and adopting the new teaching approaches such as the constructivist teaching approaches is important (Vaishali and Misra, 2020). As Duffy and Jonasse (1991) also emphasized that teachers should accept the innovative and modern teaching strategies wholeheartedly, so first of all teachers themselves need to show commitment and make purposeful efforts to deepen their understanding of CAs in education. Further, the result of the study showed that lengths of teaching experience, different boards they are teaching in, and gender have no significant impact on teachers' awareness of

CAs. In this regard the organization of CAs based professional development programs and refresher courses for secondary school teachers (Ilyas, Rawat, Bhatti& Malik, 2013) can play a valuable role. As a policy, professional development programs on constructive approaches should be introduced for secondary school teachers to make them more skilled and confident to practice and use these approaches. As another measure, the organization of training workshops and inclusion of more constructivist teaching activities will be helpful to encourage teachers to adopt constructive strategies in the classroom settings (Chibani & Hajal, 2017). In a nutshell, this study can be considered a pilot study to guide future studies and policies aiming to promote constructivist approaches to classroom teaching and learning. Based on the findings, the following recommendations and suggestions may help to improve the use CAs in teaching and learning in classrooms. These recommendations and suggestions are directed to different stakeholders of education, i.e., policymakers, teacher training institutions, schools, curriculum developers, and teachers themselves.

1) Peer coaching and mentoring are very helpful in making one's understanding clear about a phenomenon. The teachers who are well versed in CAs should come on the front foot to make their classrooms as constructivist classrooms. They must also help those who are lacking in their understanding of constructivism. These teachers may assist others to cope up with the upcoming problems in the implementation of CAs in classrooms. Using social networking websites and other online platforms may also be helpful in this direction.
2) Teacher educators may present themselves before their student teachers as role models using CAs to teach them.
3) By maintaining their status as a facilitator in curriculum transactions, teacher educators will be able to sow the seeds of constructivism among the future teachers.
4) Teacher training institutions may provide a successive series of workshops, seminars, conferences, training programmes, and other in-service programmes regarding to promote awareness of CAs.

5) In all training or in-service programmes which are designed for other relevant aspects of teaching-learning, there need to be short discussion sessions dedicated to innovative teaching pedagogies and approaches in teaching.
6) Teacher Training Institutions may organize exchange programmes of best teaching practices (with especial focus on CAs) or experiences among different schools.
7) Policymakers should encourage teacher training institutions to design and implement awareness programmes on different aspects of CAs.
8) Curriculum developers and book writers should emphasize such aspects and provide separate write-ups for teachers to implement these aspects in their teaching.

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