



**A Study of Conceptions of Teaching and Learning and  
Ontological Beliefs of Prospective Teachers**

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**Abstract**

This paper aims to study the conceptions of teaching and learning and ontological beliefs for prospective teachers who intend to excel in their teaching career. Two major conceptions of teaching and learning (traditionalist and constructivist) have been delineated. Two components of ontological beliefs (ontological realist and ontological relativist) have been delineated. The purpose of this study was to determine number of prospective teachers in Colleges of Education, Greater Mumbai having constructivist conceptions of teaching and whether ontological beliefs and gender would influence their conceptions. Teaching and Learning Conceptions Questionnaire (TLCQ) (Chan & Elliott, 2004) and Ontological Beliefs Tool (Pandagle & Pandya, 2016) were administered to 327 prospective teachers selected through probability sampling. The results indicate clear relationships between female prospective teachers' conceptions of teaching and learning and ontological beliefs whereas there is no significant relationship of male prospective teachers' conceptions of teaching and learning and ontological beliefs. From the preceding, it is clear that the prospective teachers would need to be aware of their ontological beliefs as it has a significant relationship with conceptions of teaching and learning, especially the male prospective teachers. Implications of these results for improvement of conceptions of teaching and learning of prospective teachers and for further research have been drawn

**Introduction**

“They alone live, who live for others.” - Swami Vivekananda ([https:// www.goodreads.com/](https://www.goodreads.com/)). Teachers were considered as the one who lived for their students but this belief is changing slowly as teaching profession has moved more towards commercialization. The aim of majority of teachers today has changed as compared with the aim of teachers of the olden days. This shift in attitude towards teaching may be related with their conceptions of teaching and learning.

Probably their beliefs play an important role which in turn affects and influences their conceptions of teaching and learning. Thus, they enter into teaching field with these conceptions and exhibit them. Teaching, however, is also somewhat individualistic in-as-much-as the personality of an individual teacher and the beliefs will influence how well they are able to use the proven tools of good teaching.

Research suggests that there are mainly two major conceptions of teaching and learning. They are traditional and constructivist conceptions. The traditional conception, which is more prevalent in classrooms, places much emphasis on teaching as transmission of corpus of knowledge from authoritative sources like teachers and textbooks to students who are passive recipients. The students are expected to take the knowledge from teachers undoubtedly. The constructivist conceptions of teaching are predicated on the principle that it is a process of assisting and guiding the learner during her/his attempts to construct meanings from series of experiences in her/his environment.

The concept of ontological beliefs is concerned with beliefs about the nature of reality and being (Guba and Lincoln, 2000; Merricks, 2007). Ryan (2006) suggests that it is from within an individual's ontological being or worldview that he/she interprets the world and how they see their place in it. Epistemology is dependent on ontological worldview and it allows one to identify what to see as knowledge and how this knowledge is generated to describe reality. Hyde (1995) wonders if one focuses his/her attention more on epistemology than on ontology because his/her way of being is not always readily available to be interacted with. Yet, it is this way of being that is the context in which the knowledge is held. According to Hyde, the ontology means who a person is in the matter of what he/she can know. Shadish, Cook & Campbell (2002), on carrying out research into teachers' ontological beliefs, placed teachers' ontological beliefs on a realist to relativist continuum. From an educational perspective, Shadish et al. (2002) have found that a teacher with a realist world-view would be more likely to endorse a belief that knowledge can be transmitted to a student, whereas a relativist would be more likely to express a constructivist perspective that each student constructs knowledge that is relevant to him or her with the help of the teacher (Brownlee & Berthelsen, 2006; Chan and Elliot, 2004).

One of the pre-requisite to be a good teacher is to understand the teaching learning process in depth. This facilitates better appreciation of the teaching profession as well as the process of imparting education. Effectiveness of teaching reflects interplay among a number of teacher-variables prominent among them is the conceptions of teaching and learning and ontological beliefs. A considerable amount of attention has been given to conceptions of teaching and learning of teachers and teacher educators by researchers in education for some decades now (Young, 1981; Entwistle, Skinner, Entwistle & Orr, 2000; Samuelowicz & Bain, 2001; Kane, Sanddretto & Heath, 2002; Chan, 2004; Teo & Chai, 2008). But a considerable attention is required to be given on conceptions of teaching and learning and ontological beliefs especially of those who are in the process of being a teacher. Hence, it is of a significant interest to study the conceptions of teaching and learning and ontological beliefs of the prospective teachers admitted to teacher education institutions.

### **Rationale of the Study**

The construction of meaning is thought to occur best when the teaching and learning experiences are contextualized in the real world than in educational contexts only. Thus, they involve a significant degree of inquiry, as well as the application of higher order thinking skills which stimulates the conceptions and belief system of an individual. When reality is seen within educational contexts then the individual is capable of just accessing it but when reality is seen as something that an individual is related with directly or indirectly then they are better able to create their own knowledge. Each interpretation brings with it a different view of knowledge, learning and teaching and multiple shades and blends of constructivism and social constructionism have emerged over time to reflect these views. According to Chan (2008) there exist clear relations between pre-service teachers' epistemological beliefs and their conceptions with regard to what constitutes effective teaching and learning. The purpose of this research is to study the conceptions of teaching and learning and ontological beliefs and to consider whether their ontological beliefs have any significant impact on their conceptions of teaching and learning. There are no studies found by the researcher of the present study where conceptions of teaching and learning are studied with ontological beliefs in prospective teachers. Hence, the researcher is keen to study the conceptions of teaching and learning and ontological beliefs of prospective teachers.

Perhaps if the conceptions of teaching and learning and ontological beliefs of prospective teachers are understood, teacher education programs could be facilitated as desired and be prepared in such a way that it caters to the needs of prospective teachers, in general. It is hoped that the findings of the present study will provide enlightenment on the conceptions of teaching and learning of the prospective teachers. The following are the null hypotheses that were tested for the present study:

### **Hypothesis**

1.  $H_0$ : There is no significant relationship of conceptions of teaching and learning with ontological beliefs on the basis of gender of prospective teachers.

### **Method**

The purpose of the present study was to examine the conceptions of teaching and learning of the prospective teachers in relation to ontological beliefs. The descriptive research method of correlation included under the quantitative paradigm was used for the present research.

The correlation method was used to determine the relationship between conceptions of teaching and learning of the prospective teachers and their ontological beliefs.

### **Participants**

The data were collected from 342 prospective teachers and out of which 15 incomplete tools were rejected. The final sample size was 327 prospective teachers from various B.Ed. colleges across Greater Mumbai and affiliated to University of Mumbai. Thus, the response rate was 95.61%.

### **Instrument**

Data on prospective teachers' conception of teaching and learning were collected using Teaching and Learning Conceptions Questionnaire (TLCQ) which was designed by Chan and Elliott (2004). The scale was validated by administering it to a sizeable sample of teacher education students in Hong Kong. It includes thirty items which are scored on a Likert scale of five points (1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; 5 = Always). It is a two-factor, 30-item questionnaire designed to measure the Traditionalist Conception and Constructivist Conception of teaching and learning. It consists of an 18 – item traditionalist conception (TC) and a 12 – item constructivist conception (CC). The total internal consistency of the scale using Cronbach's alpha was 0.84.

Data on prospective teachers' ontological beliefs were collected using Ontological Beliefs Tool (OBT) (Pandagle & Pandya, 2016). There are two components of the tool that are ontological realist and ontological relativist. The tool contains 18 items. Each item having two alternatives (a) and (b) out of which one has to be tick marked where (a) is ontological realist and (b) is ontological relativist. The scores assigned are 0 and 1, 0 to ontological realist and 1 to ontological relativist. The total internal consistency of the scale using Cronbach's alpha was 0.73.

### Sampling Techniques

The researcher used a three stage-sampling technique. At the first stage, B.Ed. colleges were selected through stratified random sampling wherein the strata were North, Central and South Mumbai. At the second stage, the sampling technique used was stratified random sampling and the strata were government, private-aided and self-financed colleges. At the third stage, prospective teachers were selected from these colleges using simple random sampling procedures. TLCQ and OBT were administered to the participants by the researchers. The participants responded and returned the questionnaire to the researchers immediately. This guaranteed maximum retrieval. The responses were scored as described under "Instrument" in the previous section. Frequency counts and percentages of responses under each response option were determined. Data were analyzed using Microsoft Excel 2007 and VassarStats: Website for Statistical Computation (<http://vassarstats.net/>).

### Analysis

1.) The hypothesis states that there is no significant relationship of conceptions of teaching and learning (CTL) with ontological beliefs (OB) on the basis of gender. To test this hypothesis, correlation was used. Table 1 represents statistics on the CTL with OB in prospective teachers on the basis of gender.

**Table 1: CTL with OB on the basis of gender**

Gender	N	Groups	Mean	'r'	P	Coefficient of Determination
Female	296	CTL	-5.9662	0.4431	<.0001	19.63%
		OB	7.6014			
Male	31	CT	-10.1613	0.319	0.080671	Not Significant
		OB	5.6774			

From table 1, it can be stated that the obtained 'r' is 0.4431 ( $P = <.0001$ ) for CTL and OB in the case of female prospective teachers. It is significant. Hence, the null hypothesis is rejected in the case of female prospective teachers. The magnitude of the relationship is moderate as the 'r' is 0.4431. Since, 'r' is positive, it shows that there exists a direct relationship in CTL with OB for female prospective teachers. The coefficient of determination is 19.63%. It means that 19.63% of the variance in CTL of female prospective teachers is associated with OB. It can be concluded that higher the OB score, higher is a teacher's ontological relativism implying that higher is likely to be her inclination towards constructivist conception.

In the case of male prospective teachers, the obtained 'r' is 0.319 ( $P = 0.080671$ ) for CTL and OB. It is not significant. Hence, the null hypothesis is accepted in the case of male prospective teachers.

### **Conclusion**

The results indicate clear relationships between female prospective teachers' conceptions of teaching and learning and ontological beliefs. The findings of this study support the conclusion that the conceptions of teaching and learning of prospective teachers with ontological beliefs is influenced in the case of female prospective teachers and not by their male counterparts. The present paper gives insight into a few concepts of teaching and learning and beliefs of prospective teachers, especially at the higher levels of education. Arguably, most of the educationist would agree that conceptions or beliefs about teaching that focus on student learning outcomes are more desirable than conceptions or beliefs that focus on the teaching and/or content. Teaching development work that led to changing conceptions to more student/learning oriented conceptions would, therefore, probably be almost universally acceptable.

### **Discussion**

The prospective teachers who believes that every learner should be considered as an individual, every learner should construct meaning that is unique to him/her, learners must construct knowledge from their own experiences, teacher must adopt a style of teaching as per students' needs, teachers must teach adjusting to their students' learning style and each student has his/her own learning styles are towards constructivism. Constructivism or student-centered

approach is based on Piagetian theory, referring to the belief that perspectives or conceptions are constructed by the interpretation of experiences (Kegan, 1982, 1994 cited in Cheng et al, 2009). It is a well-known fact that beliefs play an important role in formation of the conceptions. These researchers advocate a model that builds on Guskey's (1986) model where change in teaching practice precedes change in student learning outcomes, which leads to change in teaching beliefs. Even prospective teachers have some beliefs regarding teaching and learning and also, might have witnessed various realities before and during the process of the teacher education programs. This also influences the conceptions of teaching and learning. Hofer (2001) suggests that men seem to adopt more individualistic ways of knowing while women adopt more personal and inter-individualistic ways of knowing. This supports the findings of the present study that shows the CTL and OB for female prospective teachers are significant whereas it is not significant for male prospective teachers. This may be because women appear relatively comfortable with uncertainty, whereas men tend to exhibit more of a need to defend viewpoints and to move towards certainty. This observation provides a plausible explanation to the finding of this study with respect to the hypothesis.

### **Implications**

The findings of the present study show that no significant relationship was found between conceptions of teaching and learning and ontological beliefs among male prospective students. From the preceding, the implications of these findings are that prospective teachers would need to be aware of their ontological beliefs as it has a significant relationship with conceptions of teaching and learning, especially the male prospective teachers. For this, the teacher education programmes like the preparations and organizations of the core courses, specialization courses, curricular activities and co-curricular activities must be planned and executed in such a way that it stimulates and promotes the belief system especially the ontological beliefs of the prospective teachers effectively. In this discourse a special

Consideration must be given to the male prospective teachers because generally they are very few in numbers as compared to the female prospective teachers. Examining the relationship of prospective teachers on the basis of gender can be an important lever for creating more awareness about specific learner needs within learning environments. They should be assisted to be open-minded to contemporary approaches to organizing interaction patterns in their teacher education programs. Seminars, conferences and workshops should be organized for them within which prospective teachers' views on beliefs and teaching and learning can be challenged. Supporting prospective teachers to reflect upon their ontological beliefs and also, about conceptions of teaching and learning is the need of the hour. This is necessary because the future generation will be influenced, shaped and moulded under these future teachers. Education may only be raised high by raising the quality of the teachers.

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