

Teacher Beliefs About Instructional Choice: Gender Differences In Education

Dr. Zahid Ullah , Abdul Wahid Aresar , Dr. Nosheen Saba , Muhammad Fazil , Sher Daraz , Nasrullah Khan

Department of Education: Abdul Wali Khan University Mardan Pakistan College Education
Department Government of Sindh.

ABSTRACT

Teacher's belief regarding their subject, students and their instructional decision influence their pedagogical practices. Unfortunately, for the most part, teachers have adequate knowledge they don't utilize constructivist conception of teaching learning practices. Teachers hold different beliefs i.e. naïve or sophisticated which enforce teachers to adopt positivist or constructivist teaching practices. The study employed descriptive research design, involving collecting quantitative data followed Mean standard deviation and t test as data analysis techniques. The population of the study constituted all 1045 secondary chemistry teachers of zone 2 in Khyber Pakhtunkhwa. Targeted sample were 450 secondary school chemistry teachers. Random sampling technique was used to collect data from secondary chemistry teachers in three districts Mardan, Nowshera and Swabi. Finding of the study revealed that teachers hold a range of beliefs i.e. naïve and sophisticated beliefs and those beliefs in return influences teachers how to teach. The study recommends for teachers, teacher educators, curriculum developer and ministry of education to diagnose and unravel chemistry teacher's beliefs, and if alterations of beliefs are desired, encourage mediation to reshape those beliefs through proper mentoring.

Keywords: Epistemological Belief, Naïve and Sophisticated Belief, Pedagogical Practices, Positivist and Constructivist Teaching Conceptions.

INTRODDUCTION

Epistemological belief illustrates to reshape, redesign, reorganize and connect many features of classroom teaching learning process (Enyedy, N., & Goldberg, J. 2004). There is strong association of teacher's beliefs and teaching practices. Every school setting has their own learning environment and every teacher has their own way of carrying out teaching learning process (Goldman, S., & Kabayadondo, Z. 2016). Every concept possesses a unique nature of knowledge that enforces the teacher to adopt and apply teaching method that lies in the best interest of constructivist classroom approach as well as constructivist teacher (Richardson, V. 2003). There are two forms of epistemological beliefs hold by teacher's i.e. naïve and sophisticated beliefs. The ill experienced, teacher centered teacher, content oriented beliefs are supported by naïve beliefs,

while well experienced, student centered teaching are stimulated by sophisticated beliefs. Similarly there are two teaching approaches extracted from pedagogical practices.

- 1) Teacher centered or positivist approach
- 2) Student centered or constructivist approach (Olafson, L., & Schraw, G. 2006).

Teachers should possess such belief and teaching approaches that stimulate following students lifelong traits (Çakici, D. 2018).

- a. Inculcate critical skills
- b. Analytical skills
- c. Reasoning and rationalistic skills
- d. Meta cognitive skills
- e. Learner's enquiry
- f. Problem solving skill

Teachers with sophisticated and high levels of epistemological beliefs are interested in developing Meta cognitive enhancement, critical and analytical thinking exercises that advances their students' epistemological growth and cognitive development (Hofer, B. K. 2001). Teacher's beliefs have a stronger and deep rooted impact on teachers teaching learning methods, thinking teachers about their content knowledge as well pedagogical knowledge. Kember (2001) finding showed that novice and pre service teacher felt it too hard to finish assignment as their epistemological position was not enough matured to line up and carry out assignment according to sophisticated and constructivist teaching paradigm (Seraphin, K. D., Philippoff, J., Kaupp, L., & Vallin, L. M. 2012). Hofer and Schommer (2004) carefully and comprehensively described how teacher's epistemological beliefs influences teacher practices. Both Hofer and Schommer recommended that by knowing, recognizing and understanding epistemology, relevant and harmonious pedagogical practices and how students understand and stimulate knowledge and learning, the prospective teachers need to understand epistemological beliefs and practices (Sandoval, W. A., Greene, J. A., & Braten, I. 2016).

OBJECTIVES OF THE STUDY

1. To examine epistemological beliefs differ across the gender.
2. To investigate pedagogical practices differ across the gender.

RESEARCH METHODOLOGY

This study employed descriptive research design to examine Secondary School chemistry teacher's beliefs and their instructional decision making. The researcher designed and implemented a quantitative strand, collects and analyzes quantitative data using statistical data analysis tools like mean, standard deviation and t test.

SAMPLE OF THE STUDY

According to LR Gay as population increases sample decreases and for 1500 population suitable sample is 500 (Hill, R. 1998). Since populations for this study were 1045 so my sample size was

450 for the population of 1045 respondents. Convenience sampling was carried out for school and random sampling for respondents. Proportionate sampling was used to extract sample respondents from population in gender wise classification which has been depicted below.

SAMPLE FRAME

Districts	Public Male	Private Male	Public Female	Private Female
Mardan	50	34	25	45
Nowshera	50	33	25	40
Swabi	50	33	25	40
Total	150	100	75	125

Quantitative analysis of teacher's beliefs and pedagogical practices

Table 1 Gender wise Comparison of Teachers Beliefs

Domain	Gender	Mean	SD	t	Df	Sig
Teachers Epistemological Beliefs	Male	78.31	7.194	1.132	448	0.000
	Female	77.56	6.772	1.132	448	0.000

Table 1 depicts the gender comparison regarding teacher's level of beliefs. The overall mean value of male teachers (public and private) 78.31 is higher than female teachers (public and private) 77.56 about all the components of teachers beliefs i.e. Knowledge simplicity, Knowledge certainty, Innate ability of knowledge, Learning quickness and Source of knowledge. Similarly standard deviation value of male teachers 7.194 is higher than female teachers 6.772.

Table 2 Gender wise Constructivist Conceptions of Teaching

Domain	Gender	Mean	Standard Deviation	t	Df	Sig
Constructivist Conceptions	Male	29.78	3.923	.720	448	.472
	Female	29.52	3.690	.720	448	.472

Table 2 depicts the gender comparison regarding gender comparison of teacher's constructivist conception of teaching. The overall mean value of male teachers is 29.78 higher than female teachers 29.52 about all the components of constructivist conceptions of teaching. Similarly standard deviation value of male teachers 3.923 is higher than female teachers 3.690.

Table 3 Gender wise Traditional Conceptions of Teaching

Domain	Gender	Mean	Standard Deviation	t	Df	Sig
Traditional Conceptions	Male	28.30	4.433	-3.560	448	0.000
	Female	29.73	3.973	-3.560	448	0.000

Table 3 depicts the gender comparison regarding teacher's traditional conceptions of teaching. The overall mean value of female teachers is 29.73 higher than male teachers 28.30 about all the components of teacher's traditional mode of teaching. However standard deviation value of male teachers 4.433 is higher than female teachers 3.973.

Table 4 Sub categories in Gender wise Comparison of Teachers Beliefs

Domain	Gender	Mean	Standard Deviation	t	Df	Sig
Knowledge simplicity	Male	16.36	2.837	5.927	448	0.000
	Female	14.75	2.931	5.927	448	0.000
Knowledge certainty	Male	14.17	3.000	-5.167	448	0.000
	Female	15.60	2.796	-5.167	448	0.000
Innate ability	Male	15.73	2.959	-2.021	448	0.000
	Female	16.30	2.955	-2.021	448	0.000
Learning Quickness	Male	13.23	3.257	-1.816	448	0.000
	Female	15.75	2.717	-1.816	448	0.000
Source of knowledge (authority)	Male	16.82	3.507	5.071	448	0.000
	Female	14.17	3.330	5.071	448	0.000

Table 4 shows that mean value of male teachers is 16.36 higher than female teachers 14.75 regarding sub category of knowledge simplicity, However standard deviation is higher 2.931 for female than male 2.837. Similarly t value shows that this difference is significant. Mean value of female teachers is 15.60 higher than male teachers 14.17 concerning the sub category of knowledge certainty. Similarly standard deviation is higher for male 3.00 than female 2.796. Similarly t value shows that this difference is significant. Mean value for the sub category regarding innate ability of knowledge of female teachers is 16.30 higher than male teachers 15.73. Similarly standard deviation is 2.959 higher for male than female 2.955. However t value shows that this difference is significant. Table 2 also shows that mean value of female teachers is 15.75 higher than male teachers 13.23 with respect to learning quickness. Similarly standard deviation is 3.257 higher for male than female 2.717. Similarly t value shows that this difference is significant. Mean value of male teachers is 16.82 higher than female teachers 14.17 concerning source of knowledge acquisition. Similarly standard deviation is 3.507 higher for male than female 3.330. However t value shows that this difference is significant.

FINDINGS OF THE STUDY

Important findings extracted from analysis of this study are as follows

Finding: Gender wise Comparison of Teachers Beliefs

Table 1 depicts the gender comparison regarding teacher's level of beliefs. The overall mean value of male teachers (public and private) 78.31 is higher than female teachers (public and private) 77.56 about all the components of teachers beliefs i.e. Knowledge simplicity, Knowledge certainty, Innate ability of knowledge, Learning quickness and Source of knowledge.

Finding: Gender wise Constructivist Conceptions of Teaching

Table 2 depicts gender comparison of teacher's constructivist conception of teaching. The overall mean value of male teachers is 29.78 higher than female teachers 29.52 about all the components of constructivist conceptions of teaching.

Finding: Gender wise Traditional Conceptions of Teaching

Table 3 depicts the gender comparison regarding teacher's traditional conceptions of teaching. The overall mean value of female teachers is 29.73 higher than male teachers 28.30 about all the components of teacher's traditional mode of teaching.

Finding: Sub categories in Gender wise Comparison of Teachers Beliefs

Table 4 shows that mean value of male teachers is 16.36 higher than female teachers 14.75 regarding sub category of knowledge simplicity.

Table 4 shows that Mean value of female teachers is 15.60 higher than male teachers 14.17 concerning the sub category of knowledge certainty.

Table 4 shows that Mean value for the sub category regarding innate ability of knowledge of female teachers is 16.30 higher than male teachers 15.73.

Table 4 also shows that mean value of female teachers is 15.75 higher than male teachers 13.23 with respect to learning quickness.

Table 4 also shows that Mean value of male teachers is 16.82 higher than female teachers 14.17 concerning source of knowledge acquisition.

DISCUSSIONS

The goal of this study was to explore teacher's beliefs and instructional decision-making. Teachers' responses revealed that most of the male teachers possess more sophisticated and well experienced beliefs (78.31) regarding all the components of teacher's beliefs than female teachers 77.56. The results of this study show that the majority of the male teachers' with mean value of 29.78 responses concerning about all the components of constructivist conceptions of teaching than female teachers with mean value of 29.52. Results show that majority of male teachers adopt constructivist conceptions of teaching learning practices. These results shows that in gender wise comparison, public school teachers acquire more advanced and high level beliefs about all the components' of the beliefs. In subcategories Mean value of male teachers is 16.36 higher than female teachers 14.75 regarding knowledge simplicity. Results of findings shows that male teachers perceive knowledge complex phenomena and that solving a problem need hard work. Teachers responses for knowledge certainty shows a Mean value for female teachers 15.60 higher than male teachers 14.17 demonstrate that knowledge is not fixed and certain in fact knowledge is tentative and subject to change. Mean value for the sub category regarding innate ability of knowledge of female teachers is 16.30 higher than male teachers 15.73. These results show that knowledge is acquired with experience. Similarly teacher's responses with respect to learning quickness shows mean value of female teachers 15.75 higher than male teachers 13.23 shows that knowledge acquisition is slow and gradual process.

RECOMMENDATIONS

1. The researcher recommends that teacher educators needs to identify the beliefs teachers hold as they begin their teacher preparation program. By doing so, currently held misconceptions about education can be examined and discussed. If modifications of beliefs are needed, it is recommended that teachers have the opportunity to participate in interventions, reflective thinking, and discussions in an attempt to modify their naïve beliefs.
2. Khyber Pakhtunkhwa text book board revised SSC (secondary school certificate) chemistry textbooks. The revised textbooks promote conceptual development and help in development of essential analytical critical thinking skills of the students. Teachers needs the latest teaching

tools, comprised of visual illustrations, application based learning techniques and real-world problem-solving methods. Changes in textbooks were introduced to eliminate rote learning. Therefore it is recommended that chemistry teachers should replace their traditional beliefs of teaching and embrace more rational, learning oriented and knowledgeable sophisticated beliefs that transform critical, analytical, evaluative, creative and relativistic learning attitudes in students.

REFERENCES

- Çakici, D. (2018). Met cognitive Awareness and Critical Thinking Abilities of Pre-Service EFL Teachers. *Journal of Education and Learning*, 7(5), 116-129.
- Enyedy, N., & Goldberg, J. (2004). Inquiry in interaction: How local adaptations of curricula shape classroom communities. *Journal of Research in Science Teaching*, 41(9), 905-935.
- Goldman, S., & Kabayadondo, Z. (2016). Taking design thinking to school: How the technology of design can transform teachers, learners, and classrooms. In *Taking design thinking to school* (pp. 21-37). Routledge.
- Hill, R. (1998). What sample size is “enough” in internet survey research. *Interpersonal Computing and Technology: an electronic journal for the 21st century*, 6(3-4), 1-12.
- Hofer, B. K. (2001). Personal epistemology research: Implications for learning and teaching. *Educational psychology review*, 13(4), 353-383.
- Olafson, L., & Schraw, G. (2006). Teachers’ beliefs and practices within and across domains. *International journal of educational research*, 45(1-2), 71-84.
- Richardson, V. (2003). Constructivist pedagogy. *Teachers college record*, 105(9), 1623-1640.
- Sandoval, W. A., Greene, J. A., & Bråten, I. (2016). Understanding and promoting thinking about knowledge: Origins, issues, and future directions of research on epistemic cognition. *Review of Research in Education*, 40(1), 457-496.
- Seraphin, K. D., Philippoff, J., Kaupp, L., & Vallin, L. M. (2012). Met cognition as means to increase the effectiveness of inquiry-based science education. *Science Education International*, 23(4), 366-382.