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RESEARCH PAPER

Social Sciences and Islamic Pedagogy: Assessing Teachers' Pedagogical Knowledge in the Universities of Sindh, Pakistan

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PAPER INFO	ABSTRACT
*Corresponding Author sumera.irum@usindh.edu.pk	The paper examined the Pedagogical knowledge (PK) and Pedagogical Content Knowledge (PCK) of teachers in the public sector universities of Sindh province of Pakistan. Based on the descriptive and a quantitative approach, this research paper looked into the perceptions of teachers and students enrolled in B.Ed. (Hons) elementary program in the universities. It was also found that teachers and students had varying and contradictory views that teachers use systematic planning for teaching, developing lesson plans for various topics and using appropriate teaching methodology. The teachers reported to have used systematic planning during delivery of their important topics which they claimed had sufficient knowledge, while the students were not in favour of those views. It was found many of the teachers overestimated their abilities and knowledge of their subjects. It is concluded that the majority of teachers possessed Pedagogical Knowledge but lacked Pedagogical Content Knowledge (PCK)

Introduction

Teaching required multifaceted knowledge. It is not a static ability but flexible with aim of meeting renewed and modern techniques to deliver the best knowledge to students. The education given to students does not mean to make them machinery tools to reflect the same way but to be an intellectually and scholarly bridge to transmit something new to others. Delivery of education is a pedagogy which in practical philosophical terms means to give and gain maximum benefit from the process of teaching and learning. Pedagogy can be defined as the application of teaching methods by teachers based on learning theories following the course contents. According to Beetham and Sharpe (2007), pedagogy can be defined

as teaching ability and skills and connecting them with the need for time and content of the course. The philosophy of the term shows how pedagogical teaching behaviour can be the best possible way used in this digital age for teaching social sciences and Islamic knowledge and content. The focus of the contemporary debate is on how to establish quality teaching by making teachers professionally skilled and able to deliver their educational contents in the context of higher education level. In this regard, Pedagogical Knowledge (PK) is considered as an essential cognitive and practical aspect required for the professional educational competence of teachers for gaining the required standard in the higher education level and meeting the demand of the present time. However, traditional pedagogical styles become removed for being non-improved and vogue in the present culture of teaching. For example, conventionally Islamic knowledge based on the authoritative method was transmitted through listening and memorizing, the same knowledge. In this method, the teacher is active (transmitter of knowledge) while the student is passive (receiver of the knowledge) in the class context (Talbani, 1996). Due to this traditional approach of teaching, education of such subjects and other social sciences became stagnant and non-prolific particularly during the 12th and 13th centuries in the Islamic world (Talbani, 1996).

Believably it is argued that teaching students through relevant cultural knowledge make their understanding easier and relevant therefore becomes an important approach of teaching subjects including computer-related knowledge, social sciences, and religious information. Home, street, and school experiences, and the continuity and repetition of the content of knowledge delivered to students make them understand educational knowledge, is arguably considered as a beginning of the teaching method (Sinnema& Aitken, 2012; Nind& Lewthwaite, 2018). However, the hidden point in teaching such a way is not always to make them remember current or future information, but to make them intellectually curious and active with an enhancement of their interest in learning with an analytical mind with the use of diverse resources and suitable language (Sinnema& Aitken, 2012). Therefore, to make teachers best suitable for teaching modern pedagogy, According to (Wang, 2008), learning always become effective and outcome-based if instructions are effective. So the learners need effective pedagogy more than technology like e-learning which is an advanced approach that has attracted many educators in the field of education. However, many scholars emphasized that without effective pedagogy, the possible advantages of ICT in teaching and learning will not be achieved. The online technique for teaching is called electronic pedagogy (e-pedagogy). E-pedagogy has been one of the most significant elements of ICT integration into learning, Cox, et al (2003) states that great time is required by the teachers to incorporate ICT in their teaching practices they are required to create a certain application software for an interactive and engaging environment using ICT for different subjects to deliver the best information to students.

Developed countries are adopting modern pedagogies in their teaching over the world. They know the need and demands of their students, and they are

engaging them in a constructivist manner and trying to develop 21st-century skills among the students. But, developed countries are still behind in this race because they had to face many challenges in the use of modern pedagogies, especially teacher training institutions of developed countries are not producing teachers who can meet the demand of students, engage and motivate them for learning. In this concession of pedagogy, different studies have been conducted which examine how modern pedagogies can improve higher-order thinking skills and meta-cognitive skills among students by assisting students for deeper learning through collaborative efforts. For example, a research study carried out by Unver and Arabacioglu (2014) found that the usage of problem-based learning (PBL) and inquiry-based learning (IBL) in teaching enable students to acquire problem-solving skills which can help them solve the challenges of the modern time. A similar study was also carried out by Snow and Torney (2015), who used a mixed-method approach to investigate the use of the inquiry-based approach of teaching. They found the use of inquiry-based teaching develops students' cognitive skills and therefore enhances student's leadership skills, critical thinking patterns, and problem-solving ability. Additionally, empirical research was conducted by Summerlee and Murray (2010) on inquiry-based learning which concluded that students' practical engagement and academic performance could be improved through the practical engagement of inquiry things.

The takeaway of these studies is as recommended that student achievement can be enhanced by providing them opportunities of becoming inquisitive and curious about knowing things which becomes a constructivist approach to learning. Therefore, this research was designed to inspect the current Pedagogical Knowledge (PK) and Pedagogical Content Knowledge (PCK) of Teachers in the teacher education institution in the universities of Sindh, Pakistan.

Theoretical framework

The "Technological, Pedagogical, and Content Knowledge (TPACK)" model the multifaceted knowledge that is required by the teachers in modern times. This model was developed by Mishra and Koehler in (2006), this model was based on the Shulman model. According to Shulman (1987), if teachers possessed good content knowledge, they may enhance his/her capacity to teach effectively. The symbol of good teaching is the ability to transfer Content Knowledge through strong Pedagogical Skills. PK enables teachers to easily understand how their students construct knowledge and learn appropriately. The PK also enables the teachers to clear the concepts and remove the misconception of the student about the topic. According to Shulman (1987, p.9) "Pedagogical Content Knowledge contains the most; beneficial forms of demonstration of ideas, illustrations, commonly taught topics in one subject area, examples, explanations, powerful analogies, and the way of representing the topics that makes it understandable to others".

This concept was running on, and then Mishra along his fellows identify that this model should be updated according to the need and demand of this

technological era and add the third main domain of knowledge i.e. "Technology Domain" and extends the Shulman work and proposed TPACK framework Koehler & Mishra (2008), the TPACK framework differs from three individual concepts. The bases of effective teaching with the use of technology require knowledge of illustration of concepts by using pedagogical approaches and technologies. It is essential for teachers, to use technologies in effective and constructive manners so they can explain difficult concepts as easy to learn. The TPACK model shown in Figure 1.1 shows the relationship between the domains and their sub-domains for teaching and learning. This is study is limited to only two domains of Knowledge "PK" and PCK.
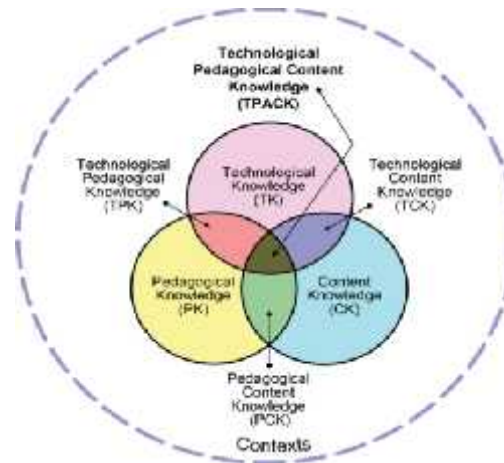

Figure 1 Three domains for teaching and learning (Source: www.tpack.org)

Literature Review

Pedagogy has been the focus of study by educational experts and social scientists. Naz and Murad (2017) studied the pedagogical knowledge of teachers and the utilization of innovative strategies in the teaching practice of teachers and its impact on the academic performance of students in universities of Pakistan. Researchers used a survey method for this research. The finding of the study showed that the academic performance of students increases by using innovative teaching strategies. It was also found that faculty of private sector universities were using these strategies more than the public sector universities. And this use is also varied between different disciplines. Assessing the teaching methods in the different districts of Khyber Pakhtunkhwa, Pakistan, Ghazi (2013) explored (CK) in secondary schools whose major research objective was to investigate the professional competency of subject matter knowledge of secondary school teachers. They use a questionnaire for data collection and found that the majority of teachers possessed sufficient subject knowledge of their relevant subjects, but they have deficiencies in applying this knowledge in real-life experiences, only a few teachers

belong to district Hangu having low competencies in their subjects. Another research on the innovative teaching strategies for teaching science in the classroom was conducted by Halai (2012). She used the meta-synthesis technique and selected 20-action researchers to explore the three domains CK, PK, and PCK of the TPACK framework. She found innovative teaching strategies like the transformation of old teaching style in the delivery of knowledge in new ways which however become a challenging task for researchers. She also found that there is a balance between teaching strategies and assessment strategies. Another study was carried out by Halai used action research and examined the teaching practices of teachers. She used an inquiry-based teaching method to teach the topic of heat and temperature to the class-IX students (Halai, 2012). She used Carlsen's concept of PCK as the lens for analysis, she found that understanding of this topic required background knowledge of science subject. It was also found that summative assessment is a severe barrier in the use of innovative pedagogy in the schools (Halai, 2012).

For teaching science subjects, Pardhan (2005) investigate the development of Pedagogical Content Knowledge of science teachers to improve science teaching in Pakistan, He used action research strategies and found that critical reflection and collaborative learning strategies enhanced the PCK development. Through these approaches, teachers can form a community of learners. However, a long time is required for the development of these strategies, and trust among the students' community and school management did not support this collaboration.

Material and Methodology

Descriptive survey research was used in this study. The data was handled quantitatively. The population of the study comprised of all public-sector universities offering B.Ed. (Hons.) Elementary 4-years program in universities of Sindh. There were 40 teachers and 462 students enrolled in 2016. The data was collected for my Ph.D. study.The Census sampling technique was adopted to choose the teachers from teacher education departments of the Universities of Sindh. According to Krejcie (1970) if the population size is (N) =462 then the sample size must be 211. Therefore (N=211) students were selected through a random sampling method. Quantitative data was collected through the questionnaires-based on a 5-point Likert scale (Agree, Strongly Agree, undecided, disagree, strongly disagree). The questionnaire was developed with the support of a literature review. The questionnaire consists of 9-items. Two different questionnaires were used for data collection from teachers and students. The same questions were asked by teachers and students, only wording was changed according to the respondents. As from teachers, it was asked like I can use different teaching strategies. And from students, it was asked as teachers use different teaching strategies. Data were analysed through frequency, percentage, mean score, and standard deviation. The SPSS version-22, the software was used for statistical analysis. For the Validity of the instruments, the "Expert Validation Technique" was employed. The reliability of the questionnaire is shown in the following table.

Table 1
Reliability of the Questionnaires

S#	TPACK Construct	Reliability of Teachers Questionnaire	Reliability of Students Questionnaire	No. of Items
1	Pedagogical Knowledge (PK)	0.87	0.796	4
2	Pedagogical Content Knowledge (PCK)	0.80	0.77	5

Results and Discussion

Pedagogical Knowledge (PK)

Pedagogical Knowledge is the main domain of the TPACK framework. For understanding the Pedagogical knowledge of Teachers four questions were asked. The details of each question are shown in the following tables.

Table 2
Pedagogical Knowledge (PK) of Teachers

SN#	Statement	Teachers		Students	
		Agree	Dis-Agree	Agree	Dis-Agree
1	I comfortably plan for the sequence of concepts in the topic that needs to be taught within my class.	29 88%	4 12%	76 36%	135 64%
2	Adjust Teaching Methodology According to the Feedback	31 94%	2 6%	84 40%	127 60%
3	Teachers determine the strategy best suited for the lessons.	28 85%	5 15%	129 61%	82 39%
4	Teachers understand the learning problems of the students in the classroom	31 94%	2 6%	54 26%	157 74%

Table 2 shows that majority of teachers (88%) agreed that they comfortably plan for the sequence of concepts in the topic that need to be taught within the class. However, the majority of the students (64%) disagreed that the teachers did not plan the required sequence of concepts in the topic that they were teaching. The mean score and Standard deviation from Teachers' opinion were found to be (1.8) and (0.89) and for Students found to be (3.1) and (1.25) respectively. The table also displays that the majority of Teachers (94%) agreed that they adjust teaching methodology according to the feedback of the students during the classroom. However, the majority of students (60%) disagreed that the majority of teachers did not take feedback during the lecture. Therefore, they have not changed their teaching methodology. The mean score and Standard deviation from Teachers' opinion were found to be (1.9) and (0.5) and for Students 'found to be (3.1) and (1.2) respectively. The table further revealed that the majority of Teachers (85%) and students (61%) agreed that teachers' had the abilities to determine the methods and techniques best suitable for the lessons that they teach. The mean score and Standard deviation from Teachers' opinion were found to be (1.7) and (0.87) and for Students' found to be

(2.6) and (1.09) respectively. The table also demonstrates that the majority of Teachers (94%) agreed that they understand the learning problems of the students in the classroom. However, the majority of students (58%) viewed that the majority of teachers did not consider the learning problems of students. The mean score and Standard deviation from Teachers' opinion were found to be (1.8) and (0.6) and for Students' found to be (3.3) and (1.2) respectively.

Pedagogical Content Knowledge (PCK)

Pedagogical Content Knowledge (PCK) is the main domain of the TPACK framework. For understanding the Pedagogical Content Knowledge (PCK) of Teachers five questions were asked. The details of each question are shown in the following tables.

Table 3
Pedagogical Content Knowledge (PCK) of Teachers and Students

S#	Statement	Teachers		Students	
		Agree	Disagree	Agree	Disagree
1	Teachers prepare lesson plans for various topics.	21 64%	12 36%	66 31%	223 69%
2	Teachers use a variety of teaching approaches in the class.	26 79%	7 21%	78 37%	133 63%
3	Teachers use different teaching strategies based on individual differences among students.	24 73%	9 27%	58 27%	153 72%
4	Teachers apply different assessment techniques to assess Student's' performance effectively	23 70%	10 30%	137 61%	83 39%
5	Teachers are familiar with common Students understandings and misconceptions	19 58%	14 42%	89 42%	122 58%

Table 3 revealed that the majority of Teachers (64%) agreed that they prepare lesson plans for various topics. However, (69%) Students viewed that teachers did not develop a lesson plan. The mean score and Standard deviation from Teachers' opinion were found to be (2.4) and (1.5) and for Students' found to be (3.3) and (1.3) respectively. The table further indicates that the majority of Teachers (79%) agreed that teachers used a variety of teaching strategies in a classroom. However, the majority of students (63%) were viewed that teachers were not using a diverse teaching approach. The mean score and Standard deviation from Teachers' opinion were found to be (2.2) and (1.1) and for Students' found to be (2.6) and (1.2) respectively. The table further expresses that the majority of Teachers (73%) agreed that they used different teaching strategies based on the individual difference among the Students. However, the majority of students (62%) viewed that the majority of teachers were not considered individual differences among the students. The mean score and Standard deviation from Teachers' opinion were found to be (2.3) and (1.1) and for Students' found to be (3.4) and (1.4) respectively. The table also displays that the majority of Teachers (70%), and students (61%) agreed that the teachers apply

different assessment techniques to assess Students' performance effectively. The mean score and Standard deviation from Teachers' opinion were found to be (2.2) and (1.5) and for Students' found to be (2.3) and (1.4) respectively. The table further displays that the majority of Teachers (58%) agreed that they know the common Student' understandings and misconceptions. However, the majority of Students (58%) viewed that teachers are not aware of students' understandings and misconceptions. The mean score and Standard deviation from Teachers' opinion were found to be (2.7) and (1.3) and for Students' found to be (0.3) and (1.4) respectively.

Discussion

Pedagogical knowledge (PK) is the main domain of TPACK, PK refers to the knowledge of; "developing lesson plan, variety of methods and strategies, classroom management, assessment techniques, and student learning" (Schmidt, et al., 2009: p: 125). PCK is the interplay between pedagogical Knowledge and content knowledge that describes detailed Pedagogical knowledge by covering a variety of teaching approaches, assessment procedures, learning theories, and students' needs (Harris, Mishra & Koehler, 2009). Leung et al., (2016) found that Subject Matter Knowledge (SMK) and Pedagogical Content Knowledge (PCK) are related constructs. The finding of this study revealed that in the majority of the statements contradiction was found between the teachers' and students' responses', such as planning the sequence of the concepts in the topic that teachers taught during the class, adjust teaching methodology according to the feedback, understand the learning problems of the students in the classroom, prepare lesson plans for various topics, use different teaching strategies based on individual differences among students, and the familiarity of teachers with common Students understandings and misconceptions. This contradiction is maybe because the majority of teachers overestimate their Pedagogical skills.

Many other researchers conducted studies on different components of pedagogical knowledge and pedagogical content knowledge. Sibanda (2018) conducted a research on planning the sequence of the concepts. She evaluates the lesson sequence of chemistry teachers while teaching the topic of chemical bound in chemistry. She used the survey method, followed by a semi-structured interview. She found that teacher mostly adopts the sequence that is prescribed in textbooks. She also found that the availability of resources plays a great impact on planning the sequence of the topic, during chemistry teaching. It was also found from students' responses that the majority of teachers did not develop lesson plans. If teachers prepare a lesson plan, then they can teach better. Although, lesson planning is a very first, basic, important, and necessary step of teaching as Vdovina and Gaibisso (2013) shown that teachers developed lesson plans and this planning provides a framework for students to maxims of learning. This practice is appalling because teachers are role models and students follow the footprints of teachers, however, if Teachers do not follow proper planning then how their students can get a focused understanding

of it. Over the world, teachers are developing a lesson plan for effective teaching, as Sahin-Taskin(2017), emphasized that the majority of researchers and educators acknowledge that a good quality of lesson planning guaranteed a successful teaching-learning process.

The finding of this study also shows that teachers do not formulate any formal strategies for feedback. There are many reasons for not taking proper feedback such as lack of motivation, interest, and monitoring, and not developing lesson plans. Feedback is a very vital component of the teaching for evaluating the performance of teachers and students. According to Hattie and Timperley (2007), if students provided timely feedback after the class, they can realize what they learned and this can provide opportunities to them so that they can enhance their understanding and remove shortcomings in the lessons. Therefore teachers are required to take proper feedback of students on time and communicate the results of feedback to students so that they can learn more and this can increase students' academic performance.

Findings showed a contradiction regarding the use of a variety of teaching approaches by the Teachers. Since teachers have not shown confidence in using modern pedagogical skills in their teaching, therefore, the lack of professional skills for the development of modern teaching methods and interactive methodologies is essentially required. It means as understood from this study, teachers mostly rely on the lecture method. The teachers reported that they use a variety of teaching approaches, but this can be taken as a lame idea which is refuted by the arguments of the student respondents in this study. The reality has been observed by Reba and Inamullah(2014) found that the majority of teachers use the lecture method (one–way communication) in their classes. Teachers were found using modern teaching strategies, in which students play an active role and they got engaged in learning and can raise the quality of education.

It was also found that the majority of Teachers were not used different strategies for covering individual differences among the students during the class. Understood that teachers have to pay equal attention to the cultural and lingual differences of students in their classes, similarly, Curran (2015) found that this ability will increase the student's academic performance and interest in learning. Like other researchers, for example, Samah and Ali (2011), suggested individual differences can be reduced to a high level of teaching is made through online technology. By paying attention to individual levels and linguistic differences, it results in creating a positive impact on student's learning and academic achievement.

The findings show that teachers were not familiar with the different concepts given in their subject outlines. Not knowing the clarity of the concepts, Dağdelen&Kösterelioğlu (2015) argue that students will not have clear ideas about what they are learning which will make their learning process dull and least interesting. Therefore, it is necessary for every teacher that he should pay attention to concepts and misconnects prevalent in society about the topic areas. Appropriate

teaching methodologies may be adopted for enhancing the comprehension of students and removing their misconceptions about the topic.

It was also found that the majority of teachers and students were agreed that teachers determine the strategy best suited for the lessons, and apply different assessment techniques to assess students' performance effectively. Guirguis says that it is the prime responsibility of the teacher to know the learning desire of their students and determine the best teaching strategies suited to their students and school. (Guirguis, 2017, p: 103). Many researchers are emphasizing teachers use modern teaching strategies so that students can acquire 21st-century skills. And their academic performance can increase. Isra (2020) conducted a study in Nigeria to explore the relationship between teaching methods and students' performance. They used a questionnaire to explore the problem, and it was found that teaching methodologies play a great impact on students' academic achievement. It was also found that the adoption of modern teaching strategies required the passion, sincerity, and dedication of teachers with their profession with a focus on the realization of the actual need and demand of the learner.

The findings show that Teachers used different assessment strategies because many teachers gave evidence of using different assessment techniques. In a few universities, Teachers use different assessment strategies because, in every course outline there is a marks distribution policy, and due to that policy they have to adopt a variety of assessment techniques. The results of the study align with the results of Singh and his colleagues (Singhet al., 2017), who explored the assessment practices of teachers in Malaysian institutions and found that teachers use a variety of assessment techniques including "oral questioning, peer assessment, and feedback". The study recommended that special training programs may be organized for teachers so that they can use more techniques to assess students' performance based on Multiple Intelligence Theory.

Hence it is concluded about PK and PCK that Teachers possessed pedagogical skills but not up to the need or requirement, and teachers over-estimate their pedagogical knowledge. Memon (2015) found that Pakistani teachers lacked pedagogical skill, especially a novice teaching ability;therefore, they needed a mentor. Olofson, Swallow, and Neumann (2016) suggested that TPACK is an effective way of creation of knowledge involving relative knowledge of an individual and pedagogical practice in the process of teaching and learning.

Conclusion

Traditional pedagogy for teaching various subjects has been replaced by modern technology with modern skills and abilities in the higher-level educational context. On the other hand, it is essentially required to make teachers and students active and analytical for not only gaining knowledge but also for synthesizing it. This study provides valuable information and results that teachers are not trained and equipped with modern knowledge and methods which can best help them

deliver their knowledge to students. This study reveals that many of the teachers of the selected sample perceived that they have high pedagogical knowledge; however, the majority of students who observed them were not satisfied with their teachers' teaching methods and knowledge. The majority of teachers used a variety of assessment techniques. Contradictions were found between the teachers and students' responses regarding; taking feedback, understanding the learning problems of students, developing a lesson plan, use of different teaching strategies to cover individual differences, and removing misconceptions among the students during the class. Hence it is concluded about PK and PCK that teachers possessed pedagogical skills but not up to the need or requirement, and teachers over-estimate their pedagogical knowledge. It can be concluded that teaching is an innovative approach that requires modern pedagogical knowledge equipped with relevant information about teaching material and information. The study revealed that teacher education universities of Sindh still far from the utilization of modern pedagogies in their teaching. It is suggested that they need to develop a favourable environment in which teachers and students are facilitated and promoted to use modern pedagogies. The development of this environment cannot be attributed to a single factor only. It is a product of efforts from all stakeholders.

Teachers seem to have not planned the sequence of the concepts in their topics; nor did they take feedback, consider individual differences among students during classroom teaching, not understanding the learning problems of students, not developing lesson plans, and not clearing misconceptions about difficult topics. However, teachers used different assessment techniques like subjective tests, objective tests, presentations, classroom participation. Teachers perceived that they have high pedagogical knowledge; however, the majority of students were not satisfied with teaching ability and delivery of knowledge in the classes. It can confidently be concluded that the content of social sciences, religious knowledge, and other subjects like ICT should be taught with an effective mechanism of modern techniques and abilities to deliver the best to the students.

Recommendations

- University administration should bound teachers that they should develop the lesson plan as the semester starts.
- The Head of the department needs to check the lesson planning of the teachers and ensured that the lesson plan was properly filled.
- The Head of the department should observed teachers during the class by making a surprise visit during the class.
- Teachers should be encouraged and motivated to use modern pedagogies by improving and enhancing incentives and reward structures.
- Many universities offered the best teacher award; universities can offer the best techno-pedagogical knowledge award.
- Universities and departmental leadership need to find ways to improve and enhance teachers' capacities to use modern pedagogies in their day to day

teaching by providing training courses. Therefore pedagogy-focused instruction should be forefront in teacher education programs.

- The Head of the department should discourage traditional practices to ensure the use of modern pedagogies in the classroom teaching as much as possible.

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