Vol. 4, Issue I, 2025 (January – March)
International Journal of Politics & Social Sciences Review (IJPSSR)
Website: https://ijpssr.org.pk/ OJS: https://ojs.ijpssr.org.pk/ Email: ijpssrjournal@gmail.com
ISSN 2959-6467 (Online) :: ISSN 2959-6459 (Print)
ISSN 2959-6459 (ISSN-L)
Recognized by Higher Education Commission (HEC), Government of Pakistan

An Empirical Investigation of Teachers' Professional Competence on Undergraduate Students' Academic Satisfaction: The Mediating role of Teaching & Learning Environment

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Abstract

It is widely believed that a teacher's professional competencies such as their pedagogical topic knowledge, self-efficacy, and teaching enthusiasm are crucial to students' academic success. Additionally, the teaching and learning environment is thought to operate as a mediator between students' academic happiness and teachers' professional competencies. The aim of the current study was to determine how teachers' professional competencies such as their knowledge of pedagogical content, their self-efficacy, and their enthusiasm for teaching affect undergraduate students' academic satisfaction with the teaching and learning environment as a mediator. A structured questionnaire was used to collect data from 336 sample cases of Bachelor of Education, Honors (B. Ed, Hons) students at higher education institutions in Makran Division, Pakistan, using the stratified sampling technique. SMART PLS-SEM was used to evaluate the data, and the results showed a statistically significant correlation between the measures of students' academic satisfaction and teachers' professional abilities. This relationship is also mediated by the teaching and learning environment. The study suggested that in order to improve student satisfaction and performance, higher education institutions should prioritize the most critical components of teachers' professional competencies and create conducive teaching and learning environment.

Keywords Teacher Pedagogical Content Knowledge, Self-efficacy, Teaching Enthusiasm' Teaching and Learning Environment, Undergraduate Students' Academic Satisfaction.

Introduction

Teachers and students are an important part of educational sector. Satisfaction of both increases learning and teaching processes (Asad, Pitaffi and Zia, 2020). Students, teachers, and the teaching and learning process are all interrelated. The quality of education is essential to a country's development. And teachers' professional competency determines the quality of instruction (Tagele & Bedilu,2015). There are major factors which has impact on teachers' professional competency as a result it directly influences students learning progress whether positive or negative. Some of the cognitive factors are teachers' Pedagogical content knowledge (knowledge about instructional planning, strategies, assessment, subject matter, motivational aspects, and learning environment including with teachers' self-efficacy and teaching enthusiasm (Shamo & Onyilo, 2017). The main objective of any intuition is to transfer information and knowledge to the students. Instructional planning and strategies, planning

is essential part of teaching process, before going to deliver any information to students, teacher his/her selves should be prepared and well planned. Teacher should plan what he/she has to teach and how to teach? and which strategy he/she should use during classroom. They should know the effective utilization of instructional strategy (Bascia & Naz, 2017). They should develop innovative techniques in order to enhance students' learning progress. Instructional planning and strategies have a direct association with students' learning progress and the success and failure of this progress is dependent on teaching and learning environment (Kanga et al,.2017). A blend of social and physical elements that provides a diverse range of learning experiences. For students to learn and strive toward their learning growth, a teacher needs to possess the ability to create a pleasant learning atmosphere. These elements affect teachers' professional competency, which can affect students' learning outcomes either favorably or unfavorably (Herrmann et al, 2017). The study's primary premise, supported by the evidence presented above, is that instructors' cognitive traits such as their professional competencies and pedagogical topic knowledge as well as their motivational traits such as their self-efficacy and excitement for teaching act as independent variables. The teaching and learning environment serve as a mediator, and the dependent variable is students' academic satisfaction.

Furthermore, Kunter et al (2013) Inspected that the teachers pedagogical content knowledge has positive impact on students' outcomes, they enjoy their classes and learn more as compare to teachers having low pedagogical content knowledge. The study supported to suggest that there should be continues analysis of teacher performance and timely provide training to improve their pedagogical content knowledge. Wolters and Daugherty (2007) claimed that the self-efficacy of teachers is highly associated with students' motivation, satisfaction, and academic achievement and, the study also shown that teachers academic learning and motivational level are influenced by instructional practices of teachers, teachers' enthusiasm, teaching behavior and commitment. Furthermore, It has been noted that teachers who are passionate about their subjects and their teaching improve students' motivation and pleasure by setting mastery goals for them to work toward in the classroom (Schiefele, 2017). Moreover, Harry and Wong (2007) stated that the teaching and learning process is required a friendly and suitable environment, where teachers and learners can easily interact and approach to each other without any internal or external restriction. Without creating a friendly and suitable teaching and learning environment in the classroom, teachers' all subject mastery is fail. Therefore, the current study examined "Teachers' Professional Competence (Teachers' Pedagogical Content Knowledge, teachers' Self-efficacy and Teachers' Teaching Enthusiasm) on Undergraduate Students' Academic Satisfaction: The mediating Role of Teaching & Learning Environment" at different higher educational institutions of Makran Division.

Literature Review

Theoretical Framework

The theoretical background of the current study was assumed to be supported by the Albert Bandura's theory of social cognition. According to Bandura (2001) social cognition theory provides a sharp attention on the interactions which take place among personal influences, and factors related to human behavior and its environment. The theory also emphasizes how proactive, self-regulating, self-organizing, and self-reflective people are. Furthermore, self-efficacy is one of this theory's main characteristics. Self-efficacy is the belief in one's own capacity to do tasks. Sources of self-efficacy include verbal persuasion (e.g., verbal encouragement, satisfaction), physiological arousal (e.g., emotional state, enthusiasm), vicarious experience (e.g., self-modeling in a teaching and learning setting), and enactive mastery (professional competence) (Bandura, 1982), One of the most potent sources of self-efficacy in the teaching and learning process is mastery experiences (Bandura 1997). Generally, students are enactive learners. They learn a specific task by carrying out that particular task by providing a conducive environment for teaching and learning with the support of an expert master in pedagogical content knowledge about the specific subject. As Bandura said that feedback about the performance can positively impact learners' self-efficacy. Furthermore, Usher and Pajares (2008) stated that students will be able to see the results of their actions, when they work to overcome the tasks' complications through their ongoing efforts so after completion the successful experience on the basis of own performance, result will increase their self-efficacy and satisfaction. The Vicarious Experiences is obtained by observing others who perform teaching and learning task that is relevant to the goals of observer. in such cases, modeling relatively come into the equations, as the process of modeling become more effective when students see themselves as similar to the model (Akkuzu,

2014). As per Bandura explanation, knowing another individual who is similar to ones'self can get succeed in a particular assigned situation and supports for the encouragement of the feelings of ability. This is reflected in students' learning and satisfaction with the task. (Bandura, 1997). In addition, in the condition of failing of a model in the teaching and learning process may affect negatively the student's self-efficacy as well as teaching and learning performance (Wang and Lin, 2007). Teachers' teaching enthusiasm is very crucial to avoid such negative impacts on the students' self-efficacy. Regarding the source of Verbal/Social Persuasion Wang and Wu (2008) mentioned that a positive and detailed verbal/social persuasion encourage students' self-efficacy sense and also enhance their performances. Thus, enactive mastery, self-modeling, verbal persuasions, and physiological arousal may be associated by teachers' professional competencies such as, pedagogical content knowledge, teaching enthusiasm, believes to perform tasks (self-efficacy), teaching and learning environment and to fostering the learners' satisfaction level to perform/achieve the learning outcomes. Thus, following empirical studies have further strengthened the direction of present study for generating research questions and hypothesis.

1. What is the effect of teachers' pedagogical content knowledge on students' academic satisfaction, and how does the teaching and learning environment mediate this relationship?
2. What is the effect of teachers' self-efficacy on students' academic satisfaction, and how does the teaching and learning environment mediate this relationship?
3. What is the effect of teachers' teaching enthusiasm on students' academic satisfaction, and how does the teaching and learning environment mediate this relationship?

Empirical Studies

- **Teacher Professional Competencies**

In this modern era teachers' professional competencies are not only limited to subject knowledge and the delivery of that knowledge to the students. According to Caffrey (2004) progress of the success full teachers are not only judged through a value-added model. It can be properly measured by teachers' survey or standardized test (Gitomer and Zisk, 2015). However, when we determine the important aspects and nature of teachers' competencies in terms of students' satisfaction and outcomes, such competencies are directly linked with cognitive and motivations respectively. Teachers' professional pedagogical subject knowledge and beliefs make up the cognitive idea of their competency (Fives & Buehl, 2012). Teachers' self-efficacy and excitement for teaching are covered by the motivational component of their competence (Zee and Koomen, 2016; Kunter et al, 2011).

- **Teacher' Pedagogical content Knowledge and Student Academic Satisfaction**

Sad, Pitaffi, and Zia (2020) investigated how students' academic satisfaction at government higher secondary schools in Ghotki, Sindh, was impacted by the pedagogical abilities and content understanding of their teachers. A total of 200 pupils from the Ghotki's rural and urban areas were chosen as the sample. Quantitative data was analyzed through spss22 software and result found that the statistically positive relationship exists between teachers' pedagogical skills, contents knowledge and academic satisfaction. The study suggested that teachers are required to work on their weaknesses and deficiencies specially in the area of teaching method and the approaches that used for the developing process of teaching and learning.

Latip, Tahmida and Ramasamy (2020) did a study on "the impact of lecturers' competencies on student satisfaction and student loyalty". Four indicators of teacher competencies were used, namely, teacher' knowledge and credentials, pedagogical knowledge and skills, over all academic experiences, and motivation. The study was conducted in Malaysia and the participants were comprising of students, who were registered in bachelor, master's and doctoral level programs. Quantitative approach was used to collect data from 386 students and result revealed that teacher' knowledge and credentials, pedagogical knowledge and skills, over all academic experiences, and motivation significantly affect students' academic satisfaction.

Long, Ibrahim and Kowang (2014) identified that teacher competencies such as pedagogical knowledge and skills, skills of the clarity of presentations, way to interact with students, teaching creativity, clear and specific learning outcomes, lecture nots and class activities are positively significant to students' satisfaction. Furthermore, Matzler and Woessmann (2010) identified that the teaching quality of the teachers are directly related to the students' academic satisfaction and performance, study found that, it is very crucial for teachers to enhance the quality of their

professional competencies for a quality full teaching. The essential keys of competencies of the teachers are their pedagogical/subject knowledge, because without having pedagogical skills and content knowledge, the teachers are unable to transfer and share relevant knowledge to the students. Therefore, teachers are essential to update their subject knowledge/pedagogical skills so that learners become to the able to meet their desirable learning outcomes and satisfied with the process of teaching and learning.

- **Teacher Self-Efficacy and Student Academic Satisfaction**

Bandura's (1986) mentioned in social cognitive theory that "A person's beliefs about their ability to carry out a specific action successfully are known as self-efficacy beliefs." Numerous studies back up the idea that self-efficacy has a significant impact on people's performance in a range of contexts, including their health, education, employment, and sports (Bandura, 1997).

Gordon (2001) identified that teachers with high levels of self-efficacy are considerably more able to satisfy pupils, influence good behavioral changes in their students, and inspire them to meet learning objectives. This self-efficacy is seen as a significant indicator or predictor of effective teaching. Caprara and Barbaranelli (2006) claimed that an essential indicator or predictor of effective teaching is teacher self-efficacy. It has been shown that teachers who have high levels of self-efficacy are better able to please their students, influence their behavior, and inspire them to meet learning objectives. Zee and Koomen (2016) synthesized forty years of research on teachers' self-efficacy to determine the importance of teacher self-efficacy for classroom quality processes, students' academic adjustment, and teachers' psychological health. A total of 165 pertinent publications were examined using a criteria-based review methodology. The study's conclusions demonstrated a positive correlation between teachers' self-efficacy and students' academic adjustment, teachers' behavior patterns, classroom quality-related practices, and the elements based on teachers' psychological well-being, including dedication, fulfillment, and individual achievements.

Teacher' teaching Enthusiasm and Student Academic Satisfaction

Kunter et al, (2013) defined that the teacher who is more enthusiastic on his/her teaching provides more helps and supports to the students, which turns in more helpful and positive influence on students' academic performance, motivation and satisfaction. Furthermore, Kunter et al (2008) studied the association between instructional behavior and instructor excitement. 323 teachers in all teach ninth-grade classes. The findings showed that passionate teachers exhibit better instructional behavior quality as judged by both students and them. Rebecca et al (2018) revealed that students' intrinsic drive and classroom mastery orientations are linked to teachers' excitement. When a teacher is more enthusiastic, they can perform better during the teaching process, which raises the degree of motivation and interest among the students. In addition, Galikhanov and Julia (2019), said that for students to be satisfied, it is imperative that teachers create favorable learning environments in the classroom. In other words, teachers are not the only ones who are not engaged in the fields of knowledge, intelligence, and emotion. One of the earlier issues and challenges facing educators in the emotional domain is burnout. In order to establish a healthy environment for children in the classroom, teachers must overcome the bad circumstances. Therefore, In order to demonstrate their passion, teachers are making sure to project a positive mood into their classroom. The interaction between teaching and learning is strengthened, and teachers and the school community are developed and enhanced by their enthusiasm, which benefits both teachers and students.

Teaching & Learning Environment

A mixed-method study of Finland's learning environment, student satisfaction, and teacher involvement. The study's findings showed a relationship between student contentment, pedagogical and emotional abilities, teacher involvement, and a play-based learning environment. The survey also indicated that in order to guarantee student pleasure, teachers must improve their teaching strategies and establish a supportive environment (Kangas, Siklander, Randolph, & Ruokamo, 2017). The association between Brunei Darssalam students' academic satisfaction and the teaching and learning environment. 1565 students from 15 government secondary schools provided the data. The study's data were evaluated using the "my class inventory" (MCI) version. According to the survey, pupils felt more satisfied when they were in a classroom with a positive learning atmosphere (Majeed et al, 2002). Lo et al, (2010) examined that students' satisfaction is associated with learning environment. Students' satisfaction. the connection between the nursing faculty at Port Said University's learning environment and student happiness. Another study including 133 third- and fourth-year students was

conducted. The study's findings showed that, according to students' perceptions, the learning environment and student satisfaction have a modest impact on one another. The T-test and Z-test were used to evaluate the data using SPSS software (Ahmed, Afify, & Taha, 2015).

Research Questions and Hypotheses

Existing literature provides strong theoretical and empirical support for the relationships among teachers' professional competencies, students' academic satisfaction, and the mediating role of the teaching and learning environment. Zaky (2020) highlighted that teachers' enthusiasm fosters active classroom engagement, enhancing students' self-efficacy, motivation, and overall academic satisfaction. Kunter et al. (2011) classified teachers' enthusiasm into two dimensions: teaching enthusiasm and subject-specific enthusiasm. It becomes clearer what teachers are enthusiastic about when it comes to their teaching techniques when these dimensions are understood. A key component of student-teacher interactions during the learning process is subject excitement, which is the pleasure teachers get from instructing particular subjects. A positive teaching and learning environment further strengthens this engagement, leading to greater student satisfaction and motivation (Rebecca et al., 2018). With an emphasis on the mediating function of the teaching and learning environment in undergraduate education, the current study thus explores the relationship between teachers' excitement for their work and students' academic satisfaction.

Furthermore, Aldridge and Fraser (2015) discovered that work satisfaction, an efficient teaching and learning environment, and a positive school climate all contribute to increased teacher self-efficacy, which in turn empowers educators to improve student accomplishment. Dicke et al. (2014) defined teachers' self-efficacy is defined as their confidence in their capacity to plan, coordinate, and carry out instructional activities in order to foster a supportive learning environment. Woolfolk and Hoy (2007) also highlighted the strong correlation between students' academic achievement and instructors' self-efficacy, namely their confidence in classroom management. High self-efficacy teachers are more likely to create a positive learning atmosphere, which raises student satisfaction and engagement (Zee & Koomen, 2016). The current study formulates hypotheses to investigate the mediating function of the teaching and learning environment as well as the direct relationship between teachers' self-efficacy and students' academic satisfaction.

Furthermore, Keller, Neumann, and Fischer (2017) found that Students' academic success is favorably predicted by teachers' pedagogical content knowledge (PCK). The relationship between PCK and student performance was also found to be mediated by cognitive activation, which includes instructor motivation, students' perceptions of enthusiastic instruction, and students' curiosity. Teachers can present material in ways that improve student understanding by using pedagogical content knowledge, which acts as a link between their subject-matter expertise and successful teaching techniques (Kleickmann et al., 2013). A high degree of pedagogical expertise enables educators to establish a demanding but encouraging learning environment, assisting students in overcoming academic obstacles through flexible solutions. These constructive teaching strategies increase student motivation and satisfaction in reaching learning goals (Hugener et al., 2009; Lipowsky et al., 2009). Thus, the current study investigates the relationship between students' academic satisfaction and teachers' pedagogical subject understanding, as well as the mediating function of the teaching and learning environment in this relationship. The current study seeks to examine the following research hypotheses in light of the literature mentioned above:

H1a: Teachers' pedagogical content knowledge significantly influences students' academic satisfaction.

H1b: The teaching and learning environment significantly mediates this relationship.

H2a: Teachers' self-efficacy significantly influences students' academic satisfaction.

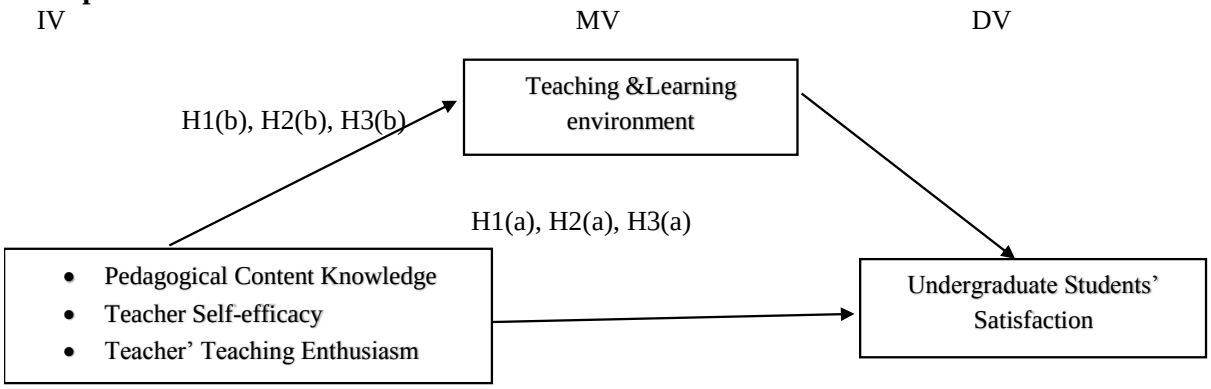
H2b: The teaching and learning environment significantly mediates this relationship.

H3a: Teachers' teaching enthusiasm significantly influences students' academic satisfaction.

H3b: The teaching and learning environment significantly mediates this relationship.

This study aims to provide empirical insights into how teachers' professional competencies influence students' academic satisfaction, while also highlighting the crucial mediating role of the teaching and learning environment in higher education settings.

Conceptual Framework of the Model



This quantitative research with correlational design is based on descriptive survey method, because it provides a clear structure for the collection of data and answers the study questions (Gay, Mills & Airasian, 2009). The current study aims to characterize the link between and among the designed factors, such as teachers' professional competences (their understanding of pedagogical material, their self-efficacy, and their excitement for teaching), which are predictive of the development of students' academic satisfaction. Furthermore, this cross-sectional study's quantitative correlational research approach is supported by numerical data regarding the teaching and learning environment as a mediator variable between students' academic satisfaction and instructors' professional competencies. Therefore, the primary data used in this study came from undergraduate students in District Turbat enrolled in B. Ed programs. Data questionnaires are sent to the chosen respondents, who also received assistance and direction in completing the study surveys.

It is quite a difficult task to collect data from the complete research population within limited time and due to the constraint of budget. Therefore, to facilitate the complete population a sample from entire population is preferred to represent the complete population (Gay; Mills and Airasian, 2008). Moreover, Cohen et al, (2007) have stated that the research subjects are chosen using two main sampling techniques: probability sampling and non-probability sampling. Simple random sampling, stratified random sampling, and cluster sampling are some of the subtypes of probability sampling. Systematic, quota, snowball, suggested, saturation, and purposive sampling are some of the subtypes of non-probability sampling approaches.

The sample was chosen using stratified random sampling procedures, which are a subset of probability sampling. The process of dividing the population into distinct strata includes the stratified random sampling approach. A random sampling procedure was used to choose a sample from each stratum once the population was split up into septate strata.

The participants in this study were undergraduate students enrolled in District Turbat's public higher education institutions. 40% of the total population was chosen as the sample size from each semester after the researcher used the stratified random sampling technique to divide the B. Ed. semesters and enrollment into distinct strata using an online calculator recommended by Denial (1999). Nevertheless, 336 of the 842 male and female undergraduate students in the district's various B. Ed. programs participated in the study, making up the sample size.

Instruments

Instruments of the present study were included with two sections .1st section was comprising of demographic study of the respondents, 2nd section encompassed 60 close ended Questionnaires. The detail of the items as variable wise are following:

Teacher Pedagogical Content Knowledge: The tools developed by Oladipo (2021) were used to measure TPCK using 15 closed-ended items. Five Likert scales were included: 1. Strongly Disagree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly Agree. All constructs' validity was examined using SPSS software by applying a Cronbach Alpha value greater than 0.7, as advised by Hair et al. (2006).

Teacher Self-efficacy: The researcher used 12 closed-ended items to measure the teacher self-efficacy construct, which were taken from Klasen, Bong, Usher, Chong, Huan, Wong, and Georgiou's (2009) study. Each item was designed using a five-point Likert scale: 1. Strongly Disagree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly Agree. By using SPSS, which is advised by Hair et al.

(2006), to apply a Cronbach Alpha value greater than 0.7, the validity of every construct was examined.

Teacher' Teaching Enthusiasm: Teaching enthusiasm was measured with 11 close-ended 5 Likert-scale items adopted form the study of Kunter, Tsai, Klusmann, Brunner, Krauss and Baumert (2008). validity of the construct was checked through SPSS software by applying Cronbach Alpha test, and the value of these constructs was more than 0.7 recommended by (Hair et al, 2006).

Teaching &Learning Environment: The current study used 22 closed-ended items to measure the Teaching & Learning Environment variable, which were taken from Herrmann, Elsborg, and Parpala's (2017). Each question had five possible answers: 1. Strongly Disagree; 2. Disagree; 3. Neutral; 4. Agree; and 5. Strongly Agree. By using a Cronbach Alpha value greater than 0.7, the validity of every construct was examined (Hair et al, 2006).

Student's Academic Satisfaction: This variable was assessed using ten closed-ended, five-point Likert scale items taken from Gee's (2018) study. The components' validity was examined using SPSS software using the Cronbach Alpha test, and their values exceeded the 0.7 threshold suggested by Hair et al. (2006).

Data Analyses

Both descriptive and inferential statistical methods were used to analyze the data in this study. The levels of instructors' pedagogical subject knowledge, self-efficacy, and teaching excitement were evaluated using descriptive statistics, such as mean, standard deviation, frequency, and percentage tests, using the Statistical Package for Social Sciences (SPSS).

The associations between students' academic satisfaction and teachers' pedagogical subject knowledge, self-efficacy, and teaching excitement were investigated using inferential statistics. Additionally, multiple regression tests utilizing SmartPLS-3 were used to analyze the mediating function of the teaching and learning environment in this association.

SmartPLS-3 software (Ringle et al., 2014) was used to assess the study's hypotheses and guarantee the validity and reliability of the research items. In keeping with Enders (2010), who stressed the significance of addressing missing data in research with care, the problem of missing values was also handled, as indicated in Table 1.

Table1

Discriminant Validity (Fornell-Larcker Criterion) of the Construct

Constructs	PCK	TSE	TTE	TLE	USS
Pedagogical Content Knowledge (PCK)	0.79				
Teacher Self-efficacy (TSE)	0.56	0.77			
Teacher Teaching Enthusiasm (TTE)	0.54	0.58	0.78		
Teaching & Learning Environment (TLE)	0.59	0.63	0.61	0.81	
Undergraduate Students' Satisfaction (USS)	0.55	0.57	0.60	0.66	0.81

Table 2

Multilevel regression analyses: Teacher competence as a predictor of students' academic satisfaction and the mediating effect of teaching and learning environment

Structural Model Analysis of the Data

Path Model	Beta	T-Value	P-Value	Decision
Pedagogical Content Knowledge and Teaching & Learning Environment	0.34	5.12	0.000 **	Significant
Teacher Self-efficacy and Teaching & Learning Environment	0.29	4.85	0.000 **	Significant
Teacher Teaching Enthusiasm and Teaching & Learning Environment	0.31	4.95	0.000 **	Significant
Teaching & Learning Environment and Undergraduate Students' Satisfaction	0.42	6.23	0.000 **	Significant

Table 3

Multilevel regression analyses predicting student satisfaction and teaching and learning environment: path model.

Mediation Analysis of the Data

Path Model	Indirect Effect	T-Value	P-Value	Decision
Pedagogical Content Knowledge and Teaching & Learning Environment and Undergraduate Students' Satisfaction	0.14	4.21	0.000 **	Significant
Teacher Self-efficacy and Teaching & Learning Environment and Undergraduate Students' Satisfaction	0.12	3.95	0.000 **	Significant
Teacher Teaching Enthusiasm and Teaching & Learning Environment and Undergraduate Students' Satisfaction	0.13	4.10	0.000 **	Significant

As per the above tables 1,2 and 3, all independent variables statistically significantly influence the mediating variable (Teaching & Learning Environment), which in turn significantly impacts Undergraduate Students' Satisfaction. Furthermore, the mediation effects are statistically significant, as indicating a major factor in raising student satisfaction is the teaching and learning environment. The model exhibits strong reliability and validity, confirming the robustness of the findings.

Results & Discussion

The dependent variable (undergraduate students' academic satisfaction), the mediator variable (teaching and learning environment), and the independent variables (teachers' pedagogical content knowledge, self-efficacy, and teaching enthusiasm) comprised the theoretical and empirical research that served as the foundation for this study. Initially the direct impacts between independent variables and dependent variable were measured through PLS by applying bootstrapping to measure the path coefficient table. The findings highlight that there is positive statistical relationship between H1 (a) teachers' pedagogical content knowledge (IV) and students' satisfaction (DV), H2 (a) Teachers' self-efficacy (IV) and Students' satisfaction (DV), and H3 (a) Teachers' teaching enthusiasm (IV) and Students' satisfaction. The study's theoretical and empirical literatures were supported by the model of the direct association between IV and DV.

Measuring the "teaching and learning environment" as a mediator between students' satisfaction and teachers' professional competence was the second component of the study's framework. According to Hair et al. (2006), the P value was less than 0.05 and the mediating effect of the factors was statistically significant.

Teachers' Pedagogical Content Knowledge: Related to Students' Satisfaction and mediated by Teaching and Learning Environment

The factors' statistical analyses demonstrated the critical significance that teachers' pedagogical content knowledge plays in fostering students' academic happiness. This relationship will enhance positively if the learning and teaching environment is according to the expectations of teachers and students. The hypotheses are in line with modern research as well as theoretical and empirical literature from the past as the result of H1 (a) teachers' pedagogical content knowledge (IV) and students' academic satisfaction (DV) is similar to the earlier studies findings that teachers' pedagogical content knowledge increases learners' motivation, interest and performance, which shows the students' academic satisfaction. Moreover, the studies explored that a suitable and conducive teaching and learning environment encourage teachers to perform better in the classroom in order to boost students' satisfaction (Latip et al., 2020).

Teachers' Self-efficacy: Related to Students' Satisfaction and mediated by Teaching and Learning Environment

The results related to the H2(a) Teachers' self-efficacy and its relationship to H2(b) Students' academic satisfaction Statistical revealed that Teachers' self-efficacy (IV) significantly affects the relationship of Students' academic satisfaction. It was also identified that this relationship increased if the teaching and learning environment is up to mark. These results are found in both modern and historical theoretical and empirical literature (Aldridge &Fraser, 2015, Woolfolk & Hoy, 2007). Teachers' self-efficacy and motivation is one of the accelerating sources of students' motivation and satisfaction level that support students to work hard for achieving learnings outcome (Zee & Koomen, 2016). In addition, a conducive teaching learning environment add the quality of students' satisfaction to acquire more knowledge under the supervision of teacher (Hugener et al., 2009; Lipowsky et al., 2009; Galikhanov and Julia, 2019).

Teachers' Teaching enthusiasm: Related to Students' Satisfaction and mediated by Teaching and Learning Environment

Findings of the present study revealed that H3(a) Teachers' teaching enthusiasm (IV) significantly affect the Students' academic satisfaction(DV). Study revealed that an enthusiastic teacher shows more interest to make the classroom environment suitable for students. Which enable students to show more satisfaction to perform better in the classroom. Findings of this study meet the results revealed in past and current studies. According to Zaky (2020) teachers' teaching enthusiasm is a very essential element of teachers' professional competency. Unenthusiastic teachers will not be able to encourage students for high level performance. Students show more satisfaction in learning if the teachers are more enthusiastic in the process of teaching. The effect of teaching and learning environment increases the quality of teachers' teaching enthusiasm and students' academic satisfaction (Kangas, Siklander, Randolph and Ruokamo, 2017). Teaching and learning environment has the great relationship with students' satisfaction and teachers' professional competencies (Ahmed, Afify, & Taha, 2015).

Strengths and Limitations of the Study

Supporting higher education institutions in building a suitable system for faculty professional development and a charming teaching and learning environment is the study's greatest strength. Teachers' professional development is linked to three key components of their professional competencies: their self-efficacy, their love for teaching, and their mastery of pedagogical content (Fauth et al,2019). The current study has demonstrated that these factors increase students' satisfaction. Higher education institutions can also benefit from the study by better understanding the value of the teaching and learning environment for the development of high-quality education (Hugener et al., 2009; Lipowsky et al., 2009).

The scope of this study is restricted to undergraduate students enrolled at Makran Division public institutions. Only those elements of teacher professional abilities that were connected to teachers' excitement for teaching, self-efficacy, and pedagogical topic knowledge served as the foundation for the study. The study also looked into how the teaching and learning environment might act as a mediator between students' academic satisfaction and teachers' professional competencies. The study's conclusions help professors in higher education institutions improve their professional competencies. Additionally, the study only included students enrolled in the B. Ed. (Hons) program, and teachers' assistance was crucial in gathering study data.

Recommendations

In order to move toward a standard education system, the results of this study will assist the administration of higher education institutions in setting up faculty professional development sessions at the university level to improve the caliber of teachers' professional competencies (teaching enthusiasm, self-efficacy, and pedagogical content knowledge). The findings demonstrated the importance of teachers' professional competencies teaching zeal, self-efficacy, and pedagogical content knowledge in raising students' academic satisfaction (Zee and Koomen ,2016). Therefore, in order to inspire and raise undergraduate students' satisfaction levels for improved academic performance, university instructors should improve their pedagogical content understanding, self-efficacy, and teaching excitement. In order to give undergraduate students the opportunity to feel like they are on the correct track during the academic term, university faculty members should adopt the strategy of providing a welcoming teaching and learning atmosphere for their students in the classroom (Hugener et al., 2009). Furthermore, the present study was limited at one division. Such study may be carried out in other higher educational institutions of the country for the larger interest and benefit of undergraduate students as well as for the country higher educational system. Gender of the undergraduate students was remained to discuss as moderator variable in the present study. More study is required to be conducted to investigate the undergraduate students' gender as moderator variable among Teachers' professional competencies and students' academic satisfaction.

Conclusion

With an emphasis on the mediating function of the teaching and learning environment, this study investigated the effects of teachers' professional competencies specifically, pedagogical subject knowledge, self-efficacy, and teaching enthusiasm on students' academic satisfaction. By limiting the scope to these three key competencies, the research explored how teachers apply these skills in the

instructional process and their influence on student experiences. The results of a thorough examination of the data demonstrated the importance of these competences in raising undergraduate students' academic happiness and emphasizing their role in creating a more stimulating and productive learning environment.

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