UMT Education Review (UER)
Volume 4 Issue 1, Spring 2021
ISSN(P): 2616-9738 ISSN(E): 2616-9746
Journal DOI: https://doi.org/10.32350/uer
Issue DOI: https://doi.org/10.32350/uer.41
Homepage: https://journals.umt.edu.pk/index.php/uer

Article: **Analyzing Teacher Competency: Knowledge, Skills, Aptitude of Secondary School Teachers**

Author(s): Farhat Parveen, Nadia Nazir, Shazia Zamir

Affiliations: National University of Modern Languages, Pakistan

Pub. Online: Spring 2021

Article DOI: https://doi.org/10.32350/uer.41.04

Article History:
Received: 6-07-2020
Revised: 24-8-2020
Accepted: 29-6-2021

To cite this article: Parveen, F., Nazir, N., & Zamir, S. (2021). Analyzing teacher competency: Knowledge, skills, aptitude of secondary school teachers. *UMT Education Review*, *4*(1), 58–79. Crossref

Estd. 1990

A publication of the
Department of Education, School of Social Sciences and Humanities,
University of Management and Technology, Lahore, Pakistan

Journal QR

Article QR

Farhat Parveen

Indexing

Crossref

ROAD

World Catalogue of Scientific Journals

EuroPub

Google Scholar

Analyzing Teacher Competency: Knowledge, Skills, and Aptitude of Secondary School Teachers of Islamabad, Pakistan

Farhat Parveen*, Nadia Nazir and Shazia Zamir

National University of Modern Languages, Pakistan

Abstract

Teacher competency is the keyto effective and quality teaching. According to the Oxford English Dictionary, competency denotes the ability, skill, and strength of an individual used to perform a given task. In order to ascertain the efficacy of the learning outcomes ofany education system, teacher competency is measured using knowledge, skills, and attitude (KSA) model. Thecurrent study used the same model to assess teacher competency of the secondary school teachers of Islamabad. Stratified random sampling technique was used to choosethe desired sample comprising 100 male and 100 female secondary school teachers teaching in Islamabad. Data were collected through personal visits of the selected schools.A self-developed questionnaire consisting of 20 items was used to collect the data. Data were analyzed using various statistical techniques such as ANOVA and the mean, standard deviation, and Pearson correlation coefficient were also calculated. The findings revealed that there is a strong and positive association among all the determinants of teacher competency, that is, knowledge, skills and attitude. The study also found that female teachers have better teaching competency as compared to male teachers. Moreover, private school teachers showed better teaching competency than public school teachers. The study also revealed that teachers with less than 5 years of experience performed better than their seniors.

***Keywords*:** attitude, knowledge, skills, teacher competency

Introduction

Human capital is rendered as the most potent internal resource for an organization to achieve stability and sustainability in the 21st century; teachers are that resource for schools. Every effort is made to hire the best-qualified resource for teaching in public and private schools in Pakistan. Nevertheless, we have been unable to reach the educational goals set by any educational policy so far (Saad, 2016). Therefore, it is essential to know what has gone wrongandwhere. The performance of any organization depends upon the potential capability or competence of its workers. Punjab Education Department has set National Professional Standards for teachers describing teacher competencies required to achieve Sustainable Education Goals

*Corresponding Author: farhat_awan@live.com

(Batool et al., 2021). However, it is not clear how much teachers themselves are aware of developing these competencies in themselves. If that had been the case, better teacher training and professional development would havebeen followed.

If a nation desires to achieve high education standards, then teacher competencies should be developed under a specified portfolio of professional development identified by proper needs analysis (Lakshminarayanan et al., 2016). The academic standards and quality of education can be improved by enhancing teacher competencies (Celik, 2011; Day, 2013). Competency is a high-quality standard of effort of a worker to achieve any objective or goal Chouhan and Srivastava (2014) therefore school teachers must develop teaching competencies according to changes occurring rapidly, especially about the use of technology. Teacher competencies may be enhanced in teaching such as methodology, classroom management, and other performance leading to achievement by focusing on planned training of these skills.

The quality, standard, and effectiveness of any education program mainly dependsupon the standards of teachers, the role and responsibilities, while the effectiveness of teachers relies onrealizing educational objectives and excel in the process of teaching and learning (Darling-Hammond & Youngs, 2002; Stronge, 2018; Capel et al., 2019). The role and importance of teachers in the scholastic system of education and cognitive abilities development are vital. Adetayo (2016) postulated that quality in teaching does not occur merely by teachers' qualifications, knowledge, or skills; teacher competency is developed through their enthusiasm to learn, high morale, and commitment to teaching.

Teachers' role in the education system is considered a significant element. Organization for Economic Cooperation and Development (2005) reiterated time and again that "teacher quality is the single most important school variable influencing student achievement. Multiple studies have affirmed this stance, emphasizing the role, responsibilities, values, and involvement of teachers in accomplishing educational objectives (Barry, 2020; Harris & Sass, 2011; Viinikka & Ubani, 2019).

Ayeni (2005) stated that teachers' competence could be determined by teaching methodology, visualization, and concern in sharing knowledge. Harris and Muijs (2005) also focused on the importance of sharing of knowledge of a teacher. The excellence and presentation of teachers has always remained a point of attention in research (Darling-Hammond & Youngs, 2002; Lee et al., 2011; Shah & Abualrob, 2012; Nabi et al., 2018). According to Darling-Hammond et al. (2017), the standard of teaching depends on the information and expertise of the teacher. However,

passion and knowledge of a teacher's subject, determination, and commitment also play a significant role.

The classic writer of management literature Ayeni (2005) defined competence as a capability to achieve all that an individual demandsto be capable of carrying outwhen proved experientially. A worker can show a high standard of determination and effort in any assigned activity. Competence is an essential and a primary trait and ability of a person to use in any assigned task (Boyatzis, 2008).

Objectives

i. To investigate the teaching competencies among secondary school teachers in secondaryschools Islamabad.
ii. To assess the demographic variations of gender, sector, and teaching experience regarding a teacher's competency among secondary school teachers of Islamabad.

Hypotheses

i. There is no association between various determinants of teacher competency scores of secondary school teachers in Islamabad.
ii. There is no significant statistical difference regarding teaching competencies between male and female teachers of secondaryschools Islamabad.
iii. There is no significant statistical difference regarding teaching competencies between public and private sector teachers ofsecondary schools Islamabad.
iv. There is no significant difference among teaching competencies regarding teaching experience ofthe secondary school teachers Islamabad.

Literature Review

Teacher competency is associated with effective quality teaching. Competency is the ability, skill, and strength of an individual to perform any given task. Weinert (2001) postulated that competence is multifactorial. Chouhan and Srivastava (2014) defined competence as a "personal trait or set of habits leading to effective or superior job performance." Researchers advocated essential competencies needed for effective performance on a specific job, and these competencies would be measured using a variety of tests (Barry, 2020). Foss et al. (2021) observed that competencies are the abilities, which add "clear economic value" to on-job personal efforts that intelligence scores may not predict and hence does not calculate professional success anymore; henceforth, he proposed that alternative measures of capability must be developed.

However, the dramatic rise in using the term 'competency' in organizational dynamics was resounded by Boyatzis (1982) in his book ―The Competent Manager. According to Boyatzis (2008), competency could be a trait or skill, a motive, or may include an exclusive aspect of one's self-image, social role, or a body of knowledge. Competencies include the collective success factors necessary for achieving significant results in a specific job or work role in a particular organization. Success factors are combinations of knowledge, skills, and abilities (more historically called ― KSAs) described in specific behaviors and demonstrated by superior performers in those jobs or work roles (Spencer & Spencer, 1993). Recently, the term competence was elucidated by Haddouchane et al. (2017) as a certified ability in a particular subject area acquired through learning in a career that can be evaluated. Wongnaa and Boachie (2018) advocated using the KSA model to define professional competencies as a foundational step for making job descriptions, designing career-oriented training, and teacher appraisals.

Teachers' core competencies are professional capabilities essential to instruction. These involve knowledge, skills, attitude, among other attributes (Tigelaar et al. 2004). In secondary school education, teachers have a direct and significant influence on students. A lack of core competencies will negatively affect the teachers' confidence and attitude and influence students' learning process (Rohaan et al., 2012). Caena (2011) argued that core competencies should be treated as an integrated concept, a dynamic combination of knowledge, understanding, and skills that allows teachers to use inner and external resources to meet comprehensive demand. Teachers' knowledge generally consists of content knowledge, pedagogical content knowledge, and curricular knowledge (Shulman, 1987).

Skills entail creating a favorable learning environment, producing and adjusting instruction design, and applying appropriate instruction, strategies, and instructional evaluation methods. Attitude covers teachers' commitment to and responsibilities in teaching, tutoring, and administrative work. Teachers well-equipped with core competencies can reasonably plan consistent curricula and activities in all circumstances (Koster & Dengerink, 2008). Good teachers can draw from experiences and overcome discrepancies between pedagogical theories, professional knowledge, and practice (Darling-Hammond et al., 2020; Hagger & McIntyre, 2006).

In order to get an idea about the efficacy of learning outcomes in any education system, teachers' performance is one of the critical factors to determine it. John Dewy always considered teaching and learning process as an incrediblyadmirable

and accountable profession where the teachers must undergo monitoring and evaluation to be held accountable for their professional growth and development to maintain high standards of teaching (Reeves, 2004). Mohanty (2000) viewed teachers' competency and performance as the most critical input in an education system. Teachers' competency and performance depends on various factors like qualification, experience, enthusiasm, training, skills, and the environmental and management structure of the institution. Based on such a definition, expert competence is not an inborn phenomenon but can be gathered via learning. Many studies share the opinion about teachers' professional competence as a collection of understanding diverse teaching philosophies, exercising them in various ways, and recognizing their ethical significance (Kaiser & König, 2019).

Miller et al. (2017) illustratedthat inner influences have an implausible influence on the educator's opinion of achievement and the exterior dynamics capable ofcreating complications in accomplishing instructional purposes. Okwilagwe (2017) expressed four categories of competencies which are as follows:

Functional competencies are essential to carry out tasks. Managerial competencies are essential for knowledge, expertise, and abilities to organize different resources of an organization. Human competencies need to develop knowledge, approach, and abilities to motivate and encourage human capital. Conceptual competencies are based on abstract ideas. The need and arrangements of these competencies depend on the level and structure of the institution.

Importance of Teaching Competency

It refers to the capability of a teacher to display on-the-job expertise and information extended as a consequence of exercise (Adodo, 2014). These abilities and data arranged in the preparation of teaching courses are planned by the curriculum planners to share to contribute to attain the anticipated education purposes unluckily not. Much consideration is compensated by teacher expertise, and hence of all the competencies a teacher wants, perhaps none is ignored as that of assessing student developments. Adodo (2013) further explained that it is not unfamiliar to find instructors/teachers who lack a grip of basic moralities of measuring or who lack the aptitude or abilities necessary to produce a classroom test in assessing students' knowledge.

Teachers' Professional Competence

The impression of professional competence is defined as the interactive and elaborative practice of considerations, ability, behavioral variables, and motivating

variables for employing a specific duty or work (Epstein & Hundert, 2002). Before professional competence is measured, there are two principal components of collected works and studies on teachers' competency skills. The first one is called Bright Person Hypothesis (BPH); it gave the understanding of overall perceptive features, including intellect or reflection (Kennedy et al., 2008; Kunter et al., 2013). Based on this point of view, the individuals who are resilient, they have the intellectual aptitude, are easy to change, flexible, and understanding problem-solvers. That is an essential trait and quality for dealing with intricate and surprising errands in teaching and learning (Riasat & Arif, 2018). The research on this feature emphasizes the strategies to encourage teachers to continue with the profession instead of leaving it in a hard way (OECD, 2005).

Blomeke and Delaney (2012) have recommended a model of professional competency of teachers with two main elements of profession-specific knowledge and affective-motivational characteristics. The specialized knowledge comprises general pedagogical knowledge, content knowledge, and pedagogical content knowledge. The elements relating to emotional and motivational characteristics are motivation, self-regulation, professional beliefs about instructional and learning process, and subject content knowledge. Others (Adetayo et al., 2016; Yang et al., 2020) have recommended a comparable model.

Factors affecting Teachers' Professional Competence

Many studies had already been conducted to get an idea about teachers' competency and the factors that can increase or decrease teachers' professional competency at various levels of educational settings. In order to achieve the aims, goals, and objectives of the educational organization and the accomplishment of teaching objectives, thorough knowledge of the subject-based content is necessary for the teacher. In this way, the desired target can be achieved with tremendous success. Professional knowledge of the subject and various other factors associated with the teaching-learning process demands the teachers' enhancement and development (Sleegers et al., 2005; Beverborg et al., 2020). Similarly, the study conducted by OECD (2005) analyzed numerous issues that affect the knowledge and understanding of teachers. Furthermore, it affects the encouragement and motivation of the teachers for grooming, professional development, self-understanding, self-respect, attention, and freedom to do something on their own. Mahler et al. (2018) pointed out various fundamental elements for boosting teachers' knowledge and enthusiasm in working environment. The techniques for enhancing teachers' enthusiasm in working atmosphere and duringassessment

strategies would improve the productive learning environment and the teachers' ability and skills.

The attainment assessment and development and productivity of teachers' highlights an encouraging aspect related to the teachers' competency, working attitude, training, and all other supporting materials that help in their competency building. This acknowledgment hints at encouraging teachers by their administrators. A study conducted by Baier et al. (2019) determined that the learners' academic results and their overall progress and development is directly related to the teachers' professional competency and linked with teachers' efficacy beliefs.

Methods of Enhancing Teachers' Competence

Teaching experience is one of the indicators of teaching competence. Teaching experience somewhat contributes to the development of teachers' competence and skills in various teaching and learning environments. According to other researchers (Burroughs et al., 2019; Wayne & Youngs, 2003) the results related to teaching experience are challenging to understand for various reasons. A question is raised: whether the teacher was inducted when there was scarcity or a surplus? Some situations include varied teaching experience; for example, some teachers leave jobs due to complex social or psychological factors, while others want a break from work. Therefore, teacher experiences could not be the same, whereas the consequence would be the same: leaving teaching (Ladd & Sorenson, 2017). The reactions mentioned above could also be attributed to different factors like workforce in the market and traditional community trends.

Conceptual Framework of the Study

Competence refers to a person's ability to perform a particular activity – quality, skills, and ability to do something competently. It is submitted as the intrinsic characteristic of a person to perform (Ibrahim et al., 2017; Prabawati, 2018). Competency is generally defined as the level of integration of knowledge, skills, and attitudes (Stoof et al., 2002; Tigelaar et al., 2004). Teachers in this respect need to demonstrate mastery in the required knowledge, skills, attitudes according to professional demands (Zhu & Wang, 2014) and follow standards set by competent authorities, National Professional Standards for Teachers in the case of Pakistan. As knowledge, skills, and attitudes are fundamental tenets of competency, the researchers had used these fundamental constituents to determine the competency of secondary school teachers working in Islamabad. This study is a part of a pilot conducted for a PhD dissertation research. This research aims to verify the capacity

of secondary school teachers to identify their competencies and how the sense of identifying competencies differs across demographic variables, gender, experience, and sector (public and private).

Methodology

The study employed a self-constructed questionnaire to collect data. The target sample of this study was 200 teachers. They were selected through stratified random sampling technique. The sample was equally divided among two strata, male and female, and public and private. Sectors F10 and F11 of Islamabad were selected as the sampling site. Public model schools were one venue and the other a private school system, which had maximum schools in the selected sectors. 20 schools (10 private and 10 public) were selected with 10 teachers teaching at the secondary level. Thus, the researchers collected the data from target sample, 100 male, and 100 female teachers teaching at secondary schools in Islamabad.

Teacher competency of the secondary school teachers was assessed through KSA Model, with three attributes, knowledge, skills, and attitude. The questionnaire consisted of 20 statements categorized on a five-point Likert Scale. Three education experts validated the research questionnaire for content validity. The reliability of the questionnaire was executed by Cronbach's alpha (0.8). The questionnaire comprised of two parts, 1) Demographic information and 2) scale. Descriptive statistical techniques, mean and standard deviation, were applied, and inferential statistics, Pearson Product Moment Correlation, t-test and ANOVA were calculated to test the hypotheses.

Results

In the following section the results are discussed. The first hypothesis was tested through Product Moment Correlation Test to determine the association between knowledge, skills and attitude of secondary school teachers. Following that t-test was applied to test the hypotheses two and three. Lastly, ANOVA was applied to test hypothesis four.

The data shown in Table 1rejects the null hypothesis; there is positive association among determinants of teacher competency. It also revealed that attitude has a stronger relationship with knowledge than skills. It means that schoolteachers rely more on content knowledge than delivery skills.

Table 1

Inter-correlation among Determinants of Teacher Competency

Subscales	1	2	3
Knowledge	-		
Skills	.156	-	
Attitude	.493**	.297	-

Table 2

T-test identifying Teacher Competency Differences regarding Gender

Variable	Gender	N	Mean	SD	df	t	
Teaching	Male	100	112.52	7.643			
Competency	Female	100	113.16	8.782	99	21.00	.000

The data shown in Table 2 rejects the null hypothesis; there is significant difference regarding teaching competency between male and female teachers of secondary schools Islamabad.According to the mean scores, female teachers have shown higher level of teaching competency than male teachers.

Table 3

t-test identifying Teacher Competency Differences regarding Sector

Variable	Sector	N	M	SD	df	t	p
Teaching	Public	100	112.18	6,492			
Competency	Private	100	113.60	9.856	49	20.50	.000

Table 3 shows that there is significant difference between public and private school teachers regarding teaching competencies; private school teachers have better teaching competencies than public school teachers.

Table 4 indicates that the mean value of fewer than five years of teaching experience is higher than the other two values where there is an insignificant difference regarding teaching experience.

Table 4

ANOVA for Teaching Competencies Regarding Tenure

Variable	Experience	N	M	SD	df	f	p
Teaching Experience	< 5 years	64	116.81	8.316			
	5-10 years	86	110.421	6.318	49	2.257	.116
	More than 10 years	50	112.950	9.069			

Discussion

This study was conducted to determine teacher competency of secondary schools Islamabad, regarding its key components, knowledge, skills and attitude. Teachers' scores on the survey were analyzed to assess the demographic variations regarding gender, sector, and teaching experience.Fourhypotheses were postulated for this study, and the test results are described as follows:

According to the results of the first hypothesis testing, there is a positive association among the components of teacher competency. The attitude of teachers is bonded strongly with the knowledge, and not skills. Kunter et al. (2013) has shown the same findings in his research study that various teaching competencies have a strong association.Teachers in Pakistan have traditional mindset and rely more on content knowledge (Nadeem et al., 2020). Teacher training regarding expansion and development of teachers' skills is a common suggestion of research done in Pakistani context. Professional competency also depends more on skills, and it is the critical element to enhance instructional standards and teacher quality. On the other hand, such foundations are not harmonious for diverse institutes, countries, provinces, or principle territories (Mohanty, 2000; Nadeem et al., 2011).

It is, therefore, significant to recognize that teachers should also display interpersonal skills for teaching mastery; their attitude should reflect gratitude and appreciation towards teacher feedback and appraisal (Nadeem et al., 2020). Another skill mastery required by quality teachers is competency in assessment and evaluation. Teacher's attitude should not only reflect the value of assessment in education, they must show an aptitude to make tests and quizzes that could distinguish between high and low performers, and to what extent the students have materialized educational objectives. Last but not the least; the teachers could make meaning of the data gathered through student results and plan for future improvement in personal knowledge, skills and attitudes (Darling-Hammond et al., 2020). Moreover, reporting of data to parents is also very important, so that the school reputation could be built. Mastering all these skillsets shall ensure that desired National Professional Standards of teacher competency have been achieved (Batool et al., 2021).

Results regardingsecond hypothesis inform that female teachers have better competencies than male teachers. There is a significant difference between male and female teachers regarding teaching competencies at Secondary level. This result contradicts the findings of Jang (2015) who found that male teachers have better competency scoresas compared to female teachers.The third hypothesis results claimed that the private school teachers have shown better competencies scores than public school teachers. There is significant difference between public and private school teachers regarding teaching competencies at Secondary level.Similar study conducted in Indonesia also concluded that there is significant difference between male and female teachers regarding professional competency (Mustafa, 2013), whereas Bataineh and Anderson (2015) found that female teachers' professional competency is better than their male counterparts.This discrepancy is related to technology immersion in technology. The teachers failing to show competency in ICT skills shall fail in innovation and creative thinking and innovation (Mello & Matthee, 2019).

According to the results of the third hypothesis, mean value of less than five years teaching experience is higher than other two values where there is insignificant difference regarding teaching experience. Shanmugasundaram and Mohamad (2011) also found similar findings in theirstudy that teachers having less than 5 years of teaching experience demonstrate better teaching competency.Other studies have shared similar results (Manullang, 2002; Mustafa, 2013). deTalancé (2017) have presented with surprising finding: contract teachers outperform the regular teachersinruralPakistani schools.

Conclusions

The following conclusions were drawn:

a. There is a positive association among various teaching competencies. Teachers show stronger dependence on content knowledge than delivery skills. Planning for teachers' professional skills development is needed

b. Female teachers are more competent than their male counterparts in overall teacher competency. This conclusion should be further investigated to know whether this difference was data specific or there are some factors which make females better teachers than males

c. Private school teachers are more competent than public teachers; this result also needs further investigation to pinpoint the factors contributing to this result. Although teachers' selection for public schools is merit based, there

is some flaw in teacher selection or teachers' professional development strategies, needing further research

d. Junior teachers withmore than five years of teaching experience exhibited better teaching competency; this competency might be attributed to mastery of younger generation of ICT skills.

Implications

The competence of teachers in various teaching and learning processes is vital for the high standards of education and student learning. A teacher's competency can be determined through his/her behavior in the working environment and is also a key achievement indicator for any school.These days governments worldwide are focusing more on the competency development of teachers to attain desired educational outcomes in their institutions.Where working to enhance teachers' professional competency is the prime objective, Poonsook (2013) suggested that transformational leaders could work better for this mission. Moreover, an educational leader builds teacher morale and teachers' optimistic attitude at workto make best use of available resources. This idea is better understood by rural principals than the urban ones (Batool et al, 2021).

König et al. (2021) professes a strong link between pedagogical competence, instructional quality, and student achievement, which may not be discipline specific. However, it serves as a significant predictor for cognitive stimulation required to get desired knowledge, skills and attitude**.**The professional competence of teachers can be enhanced and developed with the help of different techniques and strategies (Sleegers et al., 2005; Beverborg et al., 2020). Different factors that create problems for the teachers in developing their skills and competency must be watched and researched before controlling. The factors affecting teachers learning and grooming could be extrinsic or extrinsically depending on various situational elements and must be dealt with accordingly(Barry, 2020).

Secondary schools can develop a competency model by analyzing the competencies exhibited by superior performers (Adetayo et al. 2016; Kaur et al., 2018; Yang et al., 2020). The changing society calls for a multidimensional role for today's teachers, such as teaching, demonstrating, guiding, facilitating, answering questions, managing classes, and initiating learning communities (Zhu & Wang, 2014). Blomeke and Delaney (2012) have recommended a model of professional competency of teachers with two main elements of profession-specific knowledge and affective-motivational characteristics. The specialized knowledge comprises general pedagogical knowledge, content knowledge and pedagogical content

knowledge. The elements relating to emotional motivational characteristics are motivation, self-regulation, professional beliefs about instructional and learning process and the knowledge of subject content (Adetayo et al. 2016; Beverborg et al., 2020) recommended a comparable model.

Innovation and creativity is a core of human competency (Kampylis et al. 2009). Innovative teaching is also necessary to meet the educational needs of diverse student populations and the changing needs of the modern society (Darling-Hammond et al, 2017; Hargreaves, 2003; Mahler et al., 2018). Recent literature stresses that the innovation economy requires that schools facilitate deep learning and student creativity rather than mastering lower-order facts (Baier et al., 2019; Bereiter 2002; Burroughs et al., 2019).

More specifically, innovative teaching can be displayed in the following five aspects according to the teaching processes: application of innovative thoughts in teaching, the innovative use of teaching content, the use of innovative teaching methods and teaching strategies, the innovative use of teaching resources, and innovative evaluation (Huang et al., 2019; Zhu et al., 2013).

Recommendations for Further Research

Based on these findings, the researchers, therefore, recommended that:

a. The study can be replicated on the large-scale sample by analyzing various other teaching competencies at any other academic level.

b. There should be workshops and trainings for public school teachers to enhance their teaching competencies.

c. There should be incentives and rewards for the teachers having more than 5 and 10 years of teaching experience so that these teachers can also keep focused on enhancing their teaching competencies.

References

Adetayo, J. O. (2016). Teachers' factors as determinants of the professional competence of the Nigeria certificate in education teachers. *Journal of Education and Practice*, *7*(13), 1−11.

Adodo, S. (2013). Correlate of pre-service teachers and in-service teachers perceived and priorotized students' psychological profiles for the teaching and evaluating Basic Science and Technology (BST). *Journal of Emerging Trends in Engineering and Applied Sciences*, *4*(2), 305−310.

Adodo, S. (2014).An evaluation of secondary school teachers' competency in evaluating students' cognitive and pyscho-motor achievement in basic science and technology (BST).*Journal of Emerging Trends in Educational Research and Policy Studies, 5*(7), 48−53.

Al Bataineh, M., & Anderson, S. (2015). Jordanian social studies teachers' perceptions of competency needed for implementing technology in the classroom. *Contemporary Educational Technology, 6*(1), 38−61. https://doi.org/10.30935/cedtech/6138

Asghar, Z., & S. (2020). Interactive effect of school principals' leadership styles and teacher characteristics on curriculum implementation at public secondary schools of Punjab. *UMT Education Review, 3*(1), 95−119. https://doi.org/10.32350/uer.31.05

Ayeni, J. O. (2005). Issues in teaching profession and teacher competence. *Nigerian Journal of Educational Philosophy*, *12*(1), 44−50.

Baier, F., Decker, A. T., Voss, T., Kleickmann, T., Klusmann, U., &Kunter, M. (2019). What makes a good teacher? The relative importance of mathematics teachers' cognitive ability, personality, knowledge, beliefs, and motivation for instructional quality. *British Journal of Educational Psychology, 89*(4), 767−786. https://doi.org/10.1111/bjep.12256

Barry, D. (2020). *The Value of The Australian Professional Standards for Teachers as an Evaluation Tool to Enhance Teacher Quality* (Doctoral dissertation). Griffith University, Australia. https://doi.org/10.25904/ 1912/4078

Batool, I., Arif, S., & Nadeem, M. (2021). Effectiveness of Leadership Role in Taking Accountability Measures for School Improvement in Punjab.*Sir-Syed Journal of Education and Social Sciences, 4*(1), 493−504. https://doi.org/10.36902/sjesr-vol4-iss1-2021(493-504)

Bereiter, C. (2002). *Education and mind in the knowledge age*. Mahwah, NJ: Erlbaum.

Beverborg, A. O. G., Sleegers, P. J., Moolenaar, N. M., & van Veen, K. (2020). Fostering sustained teacher learning: a longitudinal assessment of the influence of vision building and goal interdependence on information sharing. *School Effectiveness and School Improvement,31*(4),576−604. https://doi.org/10.1080/09243453.2020.1754863

Blömeke, S., & Delaney, S. (2012). Assessment of teacher knowledge across countries: A review of the state of research. *ZDM, 44*(3), 223−247.

Boyatzis, R. E. (1982). *The competent manager: A model for effective performance*. John Wiley & Sons.

Boyatzis, R. E. (2008). Competencies in the 21st century. *Journal of Management Development, 27*(1), 5−12.

Burroughs, N., Gardner, J., Lee, Y., Guo, S., Touitou, I., Jansen, K., & Schmidt, W. (2019).A review of the literature on teacher effectiveness and student outcomes.*Teaching for Excellence and Equity*, *6*, 7−17.https://doi.org/10.1007/978-3-030-16151-42

Caena, F. (2011).*Literature review: Quality in Teachers' continuing professional development*. European Commission. https://ec.europa.eu/education/

Capel, S., Leask, M., & Younie, S. (2019). *Learning to teach in the secondary school: A companion to school experience*. Routledge.

Celik, S. (2011). Characteristics and competencies for teacher educators: Addressing the need for improved professional standards in Turkey. *Australian Journal of Teacher Education, 36*(4), 73−87. http://dx.doi.org/10.14221/ajte.2011v36n4.3

Chouhan V., Srivastava S. (2014). Understanding Competencies and Competency Modeling — a literature survey. *Journal of Business and Management, 16*(1), 14−22. http://doi.org/10.9790/487X-16111422

Czubaj, C.A. (1996). Maintaining Teacher Motivation. *Education, 116*(3), 372−378.

Darling-Hammond, L., & Youngs, P. (2002). Defining "highly qualified teachers": What does "scientifically-based research" actually tell us? *Educational Researcher, 31*(9), 13−25.

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020).Implications for educational practice of the science of learning and development.*Applied Developmental Science, 24*(2), 97−140.

Darling-Hammond, L., Hyler, M.E., & Gardner, M. (with Espinoza, D.) (2017). *Effective teacher professional development*. Learning Policy Institute

Day, C. (2013). Chapter 17 the New Lives of Teachers. In C. J. Craig, P. C. Meijer, & J. Broeckmans (Eds.), *From Teacher Thinking to Teachers and Teaching: The Evolution of a Research Community* (Vol. 19, pp. 357-377). Teacher Education Quarterly. https://doi.org/10.1108/S1479-3687(2013)0000019020

De Talance, M. (2017). Better teachers, better results? Evidence from rural Pakistan. *The Journal of Development Studies, 53*(10), 1697−1713. https://doi.org/10.1080/00220388.2016.1265944

Emeke, E.A. (1999). *Psychological Dimensions of Continuous Assessment Implication on Teachers and Students in Secondary Schools in Oyo State.* Stirling Horden Publishers.

Epstein, R. M., & Hundert, E. M. (2002). Defining and assessing professional competence. *Jama, 287*(2), 226−235.

Foss, N. J., Klein, P. G., Lien, L. B., Zellweger, T., & Zenger, T. (2021).Ownership competence.*Strategic Management Journal, 42*(2), 302−328.

Haddouchane, Z. A., Bakkali, S., Ajana, S., & Gassemi, K. (2017). *The application of the competency-based approach to assess the training and employment adequacy problem. International Journal of Education, 5*(1), 1−18.

Hagger, H., & McIntyre, D. (2006).*Learning teaching from teachers: Realizing the potential of school based teacher education*. Open University Press.

Hargreaves, A. (2003) *Teaching in the knowledge society: Education in the age of insecurity*. Teachers College Press.

Harris, A. & Muijs, D. (2005). *Improving Schools through Teacher Leadership.*Open University Press.

Harris, D. N. & Sass, T. R. (2011).Teacher training, teacher quality and student achievement, *Journal of Public Economics, 95*(7-8), 798−812.https://doi.org/10.1016/j.jpubeco.2010.11.009

Huang, X., Lee, J. C.-K., & Yang, X. (2019). What really counts? Investigating the effects of creative role identity and self-efficacy on teachers' attitudes towards the implementation of teaching for creativity. *Teaching and Teacher Education, 84*, 57−65.

Ibrahim, R., Boerhannoeddin, A. & Bakare, K.K. (2017). The effect of soft skills and training methodology on employee performance.*European Journal of Training and Development, 4*(4), 388−406. https://doi.org/10.1108/EJTD-08-2016-0066

Jang, I. C. (2015). Language learning as a struggle for distinction in today's corporate recruitment culture: An ethnographic study of English study abroad practices among South Korean undergraduates. *L2 Journal, 7*(3), 57−77. https://doi.org/10.5070/L27323591

Kaiser, G., & König, J. (2019). Competence measurement in (mathematics) teacher education and beyond: Implications for policy. *Higher Education Policy, 32*(4), 597−615.

Kampylis, P., Berki, E., & Saariluoma, P. (2009). In-service and prospective teachers' conceptions of creativity. *Thinking Skills and Creativity, 4*(1), 15–29.

Kaur, I., Shri, C. & Mital, K.M. (2018). Performance management model for teachers based on emotional intelligence and social media competencies. *Journal of Advances in Management Research*, *15*(4), 414−433. https://doi.org/10.1108/JAMR-09-2017-0086

Kennedy, M. M., Ahn, S. & Choi, J. (2008). The value added by teacher education. In M. Cochran-Smith, S. Feiman-Nemser & J. McIntyre (Eds.), *Handbook of research on teacher education* (pp. 1249-1273). Macmillan.

König, J., Blömeke, S., Jentsch, A., Schlesinger, L., née Nehls, C. F., Musekamp, F., & Kaiser, G. M. (2021). The links between pedagogical competence, instructional quality, and mathematics achievement in the lower secondary classroom. *Educational Studies in Mathematics*, *107*(1), 189−212.

Koster, B., & Dengerink, J. J. (2008). Professional standards for teacher educators: How to deal with complexity ownership and function experience from the Netherlands. *European Journal of Teacher Education,31*(2),135–149. https://doi.org/10.1080/02619760802000115

Kunter, M., Klusmann, U., Baumert, J., Richter, D., Voss, T., & Hachfeld, A. (2013). Professional competence of teachers: Effects on instructional quality and student development. *Journal of Educational Psychology*, *105*(3), 805−820. https://doi.org/10.1037/a0032583

Ladd, H. F., & Sorenson, L. C. (2017). Returns to teacher experience: Student achievement and motivation in middle school. *Education Finance and Policy, 12*(2), 241–279.

Lakshminarayanan, S., Pai, Y.P. & Ramaprasad, B.S. (2016). Competency need assessment: a gap analytic approach. *Industrial and Commercial Training*, *48*(8), 423−430.

Lee, J. C.-k., Zhang, Z., & Yin, H. (2011).A multilevel analysis of the impact of a professional learning community, faculty trust in colleagues and collective efficacy on teacher commitment to students.*Teaching and Teacher Education, 27*(5), 820−830.

Mahler, D., Großschedl, J., & Harms, U. (2018). Does motivation matter? The relationship between teachers' self-efficacy and enthusiasm and students' performance. *PloS One*, *13*(11), e0207252. https://doi.org/10.1371/journal.pone.0207252

Mannullang, M. (2002). *Personnel management.* Ghalia Indonesian.

Mello, S., & Matthee, M. (2019). *Implementation of Electronic Textbooks in Secondary Schools: What Teachers Need*. International Association for Development of the Information Society.

Miller, A. D., Ramirez, E. M., & Murdock, T. B. (2017). The influence of teachers' self-efficacy on perceptions: Perceived teacher competence and respect and student effort and achievement. *Teaching and Teacher Education, 64*, 260−269. https://doi.org/10.1016/j.tate.2017.02.008

Mohanty, J. (2000). *Current Trends in Higher Education*.Deep and Deep Publications.

Mustafa, M. N. (2013). Professional Competency Differences among High School Teachers in Indonesia.*International Education Studies, 6*(9), 83−92

Nabi, M., Iqbal, M. J., Mand, R., & Butt, I. H. (2018). Teacher in Promoting Quality Education: Head Teachers Perception. *Review of Economics and Development Studies, 4*(2), 145−151.

Nadeem, M., Arif, S., & Naeem, M. (2020). The Role of Principals and Administrators in Performance Appraisal of School Teachers in Punjab. *Sir-Syed Journal of Education and Social Sciences, 3*(2), 132−142.

Nadeem, M., Rana, M. S., Lone, A. H., Maqbool, S., Naz, K., &Akhtar, A. (2011). Teacher's competencies and factors affecting the performance of female teachers in Bahawalpur (Southern Punjab) Pakistan.*International Journal of Business and Social Science, 2*(19), 217−222.

Okwilagwe, O. O. (2017). Towards Rethinking Public–Private Partnership Implementation: Insights from the Nigerian Context *The Emerald Handbook of Public–Private Partnerships in Developing and Emerging Economies*. Emerald Publishing Limited.

Ololube, N. P. (2006, March). An examination of professional and non-professional teacher's classroom methodological competencies. In *LABR and TLC Conference Proceedings.*Cancun, Mexico.

Olubor, R. O. (2000). Analysis of the Positive and Negative Factors in the Teaching Profession as Perceived by Elementary School Teachers in Public Schools. *Journal of Educational Focus*, *3*(1), 5−11.

Organization for Economic Cooperation and Development. (2005). *Teachers matter: Attracting, developing and retaining effective teachers*. OECD Press.

Poonsook, U. (2013). *Causal analysis and effect on teachers' competency development in Southern Region based on professional standard in process of knowledge management development*.Curriculum and Instruction, Faculty of Education, Taksin University.

Prabawati, I., Meirinawati, M., & Oktariyanda, T. (2018). Competency-based training model for human resource management and development in public sector. *Journal of Physics: Conference Series*, *953*, 012157. https://doi.org/10.1088/1742-6596/953/1/012157

Qureshi, M. A., & Niazi, H. K. (2012). Impact of Effective Teachers on Students' Academic Achievements. *Journal of Educational Research (1027-9776)*, *15*(1), 30−38.

Reeves, D. B. (2004).*Accountability for learning: How teachers and school leaders can take charge*. ASCD.

Riasat, L. (2018). *Teachers' resistance towards change in Punjab public schools*. [Doctoral Dissertation].University of Management and Technology.http://hdl.handle.net/123456789/3047

Rohaan, E. J., Taconis, R., &Jochems, W. M. (2012). Analyzing teacher knowledge for technology education in primary schools. *International Journal of Technology and Design Education*, *22*(3), 271−280. https://doi.org/10.1007/s10798-010-9147-z

Saad, I. (2016). Education in Pakistan: Perspective, failures and prospects. *Journal of Education & Social Sciences, 4*(1), 32−52.

Shah, M., & Abualrob, M. M. (2012). Teacher collegiality and teacher professional commitment in public secondary schools in Islamabad, Pakistan. *Procedia-Social and Behavioral Sciences, 46*, 950−954.

Shanmugasundaram, U., & Mohamad, A. R. (2011). Social and emotional competency of beginning teachers. *Procedia-Social and Behavioral Sciences, 29*, 1788−1796. https://doi.org/10.1016/j.sbspro.2011.11.426

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, *57*(1), 1–23.

Sim, C. (2004). The personal as pedagogical practice. *Teachers and teaching, 10*(4), 351-364.https://doi.org/10.2307/41165214

Sleegers, P., Bolhuis, S., & Geijsel, F. (2005). School improvement within a knowledge economy: Fostering professional learning from a multidimensional perspective *International handbook of educational policy* (pp. 527-541).Springer.

Spencer, L. M. & Spencer, S.M. (1993). *Competence at work*.John Wiley & Sons.

Stoof, A., Martens, R., van Merrienboer, J., & Bastiaens, T. (2002). The boundary approach of competence: A constructivist aid for understanding and using the concept of competence. *Human Resource Development Review, 1*, 345–365.

Stronge, J. H. (2018). *Qualities of effective teachers*. ASCD.

Tigelaar, D. E., Dolmans, D. H., Wolfhagen, I. H., & Van Der Vleuten, C. P. (2004). The development and validation of a framework for teaching competencies in higher education. *Higher Education*, *48*(2), 253−268. https://doi.org/10.1023/B:GEPA.0000032565.17805.9d

Viinikka, K., & Ubani, M. (2019).The expectations of Finnish RE student teachers of their professional development in their academic studies in the light of twenty-first-century skills. *Journal of Beliefs & Values*, *40*(4), 447−463.https://doi.org/10.1080/13617672.2019.1618153

Wayne, A. J., &Youngs, P. (2003). Teacher characteristics and student achievement gains: A review. *Review of Educational Research*, *73*(1), 89–122.

Weinert, F. E. (2001). *Concept of competence: A conceptual clarification.* In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (p. 45–65). Hogrefe& Huber.

Wongnaa, C. A., &Boachie, W. K. (2018). Perception and adoption of competency-based training by academics in Ghana. *International Journal of STEM Education*, *5*(1), 1−13. https://doi.org/10.1186/s40594-018-0148-x

Yang, X., Kaiser, G., König, J., & Blömeke, S. (2020). Relationship between pre-service mathematics teachers' knowledge, beliefs and instructional practices in China. *ZDM*, *52*, 1−14. https://doi.org/10.1007/s11858-020-01145-x

Zhu, C., & Wang, D. (2014). Key competencies and characteristics for innovative teaching among secondary school teachers: a mixed-methods research. *Asia Pacific Education Review*, *15*(2), 299−311. https://doi.org/10.1007/s12564-014-9329-6

Zhu, C., Wang, D., Cai, Y., & Engels, N. (2013). What core competencies are related to teachers' innovative teaching? *Asia-Pacific Journal of Teacher Education*, *41*(1), 9−27. https://doi.org/10.1080/1359866X.2012.753984