

Relationship among Multiple Intelligence, Self-Esteem and Teacher Competency among Secondary School Teachers in Pakistan

By

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Abstract

The research examined the relationship between multiple-intelligence, self-esteem and teacher competency among secondary school teachers in Pakistan. The research question of this study was; what is the relationship between multiple-intelligence, self-esteem, and teacher's competency among secondary school teachers in district Haripur, Pakistan. The non-experimental correlational survey research design was used. The study was delimited to girls secondary school teachers. The population included 1768 secondary school teachers. 315 female teachers were chosen by using simple random sampling technique. Three distinctive questionnaires were used. Self-esteem and multiple intelligence scale were adopted and teaching competency questionnaire was self-made by using four point Likert-scale SDA to SA. Each tool was validated from the experts and pilot tested on non-sample for reliability. The study variables also have strong positive significant relationship ($p = 0.000 < 0.05$). It can be concluded that the teachers reported high SE because of having loving nature and always listen to others. It may be recommended that teachers plan instructions in a way that increase students' self-esteem and multiple-intelligence.

Key words: Self-esteem, multiple-intelligence, teaching competency, relationship

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 wrong and where. The performance of any organization depends upon the potential capability or competence of its workers. Punjab Education Department (PED) has set National Professional Standards (NPS) for teachers describing teacher competencies required to achieve

Sustainable Education Goals (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 have been 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 & Gu, 2010). 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 depends upon the standards of teachers, the role and responsibilities, while the effectiveness of teachers relies on realizing educational objectives and excel in the process of teaching and learning (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 [OECD] (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; Viinikka & Ubani, 2019).

No doubt intellectual ability is an important factor in predicting teacher's success. But recent studies, however, have shown that self-esteem (SE), intelligence and teaching experience is not entirely indicative of the teacher's success in teaching profession. Rather skills and teaching competency are essential ingredients to be professional teacher. There were also development has seen that showed self-esteem, intelligence and teachers' competencies are correlated with each other (Sahay, 2019). In today's world, teacher must develop the essential 21st Century competencies. A teacher's competency in 21st century according to UNESCO (2008) is that a competent teacher should have firm knowledge of the curriculum of his/her subject and to use technology into the curriculum. Formal system of education depends on three components that are curriculum, student and teacher. Teaching competency refers to the knowledge, attitude, skills and self-perception or the products that comes from by mixing these behaviours and resulting in consistent pattern of behaviour leading to the attainment of expected outcomes. Teaching competency is the ability of a teacher manifested through a set of overt teacher classroom behaviours which is resultant of the interaction between the presage and the product variables of teaching within a social setting (Siri et al., 2020).

Teaching competency has different dimensions such as mastery of subject matter, enhancement of motivation of students, planning, presentation and evaluation skills and classroom managerial skills. Teacher possessing all these skills to reasonable extent can be a competent teacher. Teachers' competency appears to be a significant contributor to school effectiveness. As suggested by Paramita et al. (2018), effective teachers are those with high competency in knowledge and skills. Rabo (2018) note that teachers' profound knowledge in curriculum content and pedagogy enhance students' performance. Syamsinar and Jabu (2016) states that teachers'

competency such as behaviour, skills and knowledge related to school performance. In addition, Sahay (2019) stated that teacher' competency is strongly correlated with intelligence and SE.

SE is considered a type of 'self-acceptance', individual gratefulness and 'emotional regard' of one's self. SE is to judge the distinction between their pictures of self and what they perceive as the 'perfect self'. The researchers comprehend the SE dimension of the person by looking at the "disparity between how the individual see oneself and the self they might want to be" (Ümmet, 2015).

The concept of "intelligence is a highly discussed topic for all the psychologists". In our day to day life, we define intelligence. But the definition varies from person to person. A teacher has its own definition; a student has its own definition of intelligence. "Monarchic theory defined intelligence as one factor, a store of intellectual knowledge, which is commonly present to all activities of the individual. Multifactor theory considered it to be a combination of a few independent (separate) elements or factors" (Mangal, 2002).

Howard Gardner is an American developmental psychologist at Harvard University. Gardener gave his "multiple intelligence theory" (MIT) almost eighty years after the development of first Intelligence Test by psychologist Alfred Binet. Gardener's famous book "Frames of Mind": The MIT (1983) provides a broad base and multiple frames to intelligence. According to him any individual has multiple domains of knowledge which are mainly of seven types and function independently. They are Existential, Naturalistic, Intrapersonal, Interpersonal, Spatial, Bodily-Kinaesthetic, Musical, Logical-mathematical and Linguistics (Mangal, 2002).

Research Objective

The following was the main research objective of the study.

To explore detailed demographic profile of teachers working at secondary school

To find out the relationship between multiple-intelligence, self-esteem, and teacher's competency among secondary school teachers in district Haripur

Background of the Study

Rahmani (2011) explored the relationship between self-esteem, academic goals and academic achievement. They concluded that SE, goal orientation and academic achievement strongly correlated and results of the study also revealed that self-esteem and academic goals are affecting factors on academic performance of the students. Arshad et al. (2015) conducted the study on SE and academic performance among university students. The study found substantial association between SE and academic performance. Furthermore, results revealed that there was the substantial change found between male and female students' SE and academic achievement.

Aziz et al. (2014) found the relationship between teachers' competencies and motivation at higher education level in Pakistan. The public universities were chosen for research and sample of 596 teachers was taken from it by using simple random sampling technique. The two separate questionnaires were used in this survey research design study. The Pearson correlation found positive significant relationship between study variables, which showed that those teachers who were competent also are more motivated too.

Kaur and Talwar (2014) conducted the research on teaching competencies and its relation to emotional intelligence. For this purpose, survey research design was used and

moreover, two distinct questionnaires were used for 100 participants. The findings revealed the positive significant relationship between emotional intelligence and teaching competencies. The gender comparison illustrated non-significant influence on study variables.

Parveen et al. (2021) analysed teacher competency that included knowledge, skills and aptitude of high school teachers. In this research, the KSA model was used to examine teaching competencies. The stratified random sampling technique was used on 100 male and 100 female teachers and to draw the comparison between them. Pearson correlation analysed the relationship, which showed positive association among all determinants of teaching competency. In addition, ANOVA comparison showed female teachers have better teaching competencies as compared to male teachers.

Sahay (2019) found the relationship between MI, SE and teaching competencies of high school teachers in India. The survey research design was employed by using self-made and standardised validated test. These scales were administered on 500 secondary school teachers in Patna, Bihar, India. The data analysed in SPSS. The findings of this study showed non-significant difference between male and female teachers. In addition, MI showed significant difference in terms of gender comparison. There was significant positive relationship found between MI and teaching competency of high school teachers. Same results found between SE and teacher competency.

After reviewing relevant researches both national and international, it is being observed that most of the research papers focused on students. In addition, there was no research conducted as a whole to observe SE, MI and competencies. But this study forwarded ahead to fill the gap in research. The purpose of this correlational survey study is to examine the relationship among SE, MI and teachers' competencies of secondary school teachers. This survey test the theories related to SE, Gardner's MI and teachers competency. The personal characteristics of participants were defined in the research that included; age, educational level, institutional information. The background of the participants measured, which is essential to know the difference in SE, intelligence and competency through different factors.

Methodology

The relationship between MI, SE and teacher competency was studied. For this purpose, non-experimental correlational survey research design was used. This design allows the investigator to draw the relationship among the key variables of research i.e. MI, SE and teacher competency. The survey design permits the researcher to investigate the problem through questionnaires. This study used three distinctive questionnaires, out of which two were adopted and one was self-made through reviewing the relevant literature on teacher competency. The demographic profile of respondents allows the researcher to get deeper understanding of the problem. The population of the study comprised of 1768 female secondary school teachers working in secondary schools in district Haripur. Simple random sampling technique was used for the selection of 315 female teachers for the current study. The Research Advisor (2006) was used to select the sample size for current research. The 315 teachers were calculated based on 5% confidence level.

Measures

Three distinctive questionnaires were used to collect the data, for Self-Esteem, a standardized tool was adopted which was developed by Rosenberg (1965). Secondly, multiple intelligence profile questionnaire (MIPQ) was also adopted which was previously used by Tirriand Nokelainenin(2012), and Third questionnaire was used for, teacher competency which was developed by researcher through reviewing of relevant literature..

Data Collection and Data Analysis

The researcher visited the selected Schools to collect the respondents' data and gave them a brief explanation of the study's objectives. Ethics and principles of research were observed. All respondents were assured that their information would be kept confidential and used for research only. Respondents took 12 to 20 minutes to complete the questionnaire. Moreover, the data was analysed by using SPSS. In the light of the objective of research, correlation analysis was used.

Reliability of Instrument

S.No.	ScaleName	Adoptedfrom	ReliabilityCoefficient α
1	Rosenberg'sSelf-Esteem	Rosenberg(1965)	0.856
2	MultipleIntelligenceProfiling Questionnaire(MIPQ)	TirriandNokelainen(2011)	0.907
3	TeacherCompetency	Self-made	0.779

Results and Interpretation of Data

The following tables drawn showed the analysis of data.

Table 5.1 Demographic profile of teachers

		Frequency	Percent	Valid Percent	Cumulative Percent
Age of Sample Teachers					
Valid	26-30 Years	58	18.4	18.4	18.4
	31-35 Years	44	14.0	14.0	32.4
	36-40 Years	51	16.2	16.2	48.6
	41-45 Years	71	22.5	22.5	71.1
	46-50 Years	42	13.3	13.3	84.4
	More than 50 Years	49	15.6	15.6	100.0
	Total	315	100.0	100.0	
Teaching Experience					
Valid	1-5Years	66	21.0	21.0	21.0
	6-10Years	69	21.9	21.9	42.9
	11-15Years	60	19.0	19.0	61.9
	16-20Years	17	5.4	5.4	67.3
	21-25Years	43	13.7	13.7	81.0
	26-30Years	60	19.0	19.0	100.0
	Total	315	100.0	100.0	
Academic Qualification					
Valid	BA/BSc	36	11.4	11.4	11.4
	MA/MSc/BS	279	88.6	88.6	100.0
	Total	315	100.0	100.0	
Professional Qualification					
Valid	B.Ed.	110	34.9	34.9	34.9
	M.Ed.	165	52.4	52.4	87.3
	M.Phil.	35	11.1	11.1	98.4
	PhD	5	1.6	1.6	100.0
	Total	315	100.0	100.0	

The below table 5.1 depicted the age of sample teachers in which 58 (18.4%) are 26-30 years old, 44 (14%) are 31-35 years old, 51 (16.2%) are 36-40 years old, 71 (22.5%) are 41-45 years old, 42 (13.3%) are 46-50 years old and 49(15.6%) are more than 50 years old.

In addition, the teaching experience of sample teachers in which 66 (21%) have 1-5 years' experience, 69 (21.9%) have 6-10, 60 (19%) have 11-15, 17 (5.4%) have 16-20 teaching experience, 43 (13.7%) have 21-25 years, 60 (19%) have 26-30 teaching experience.

Moreover, academic qualification of sample teachers in which 36 (11.4%) have BA/ BSc and 279 (88.6%) have MA/ MSc or BS level degree as academic qualification.

Furthermore, professional qualification in which 110 (34.9%) have B.Ed, 165 (52.4%) have M.Ed., 35 (11.1%) have M.Phil and 5 (1.6%) have PhD.

Table 5.2 Correlation among SE, MI and teaching competency of teachers

		SE	MI
Spearman'srho	MI	CorrelationCoefficient	.868**
		Sig.(2-tailed)	.000
		N	315
	Teaching Competency	CorrelationCoefficient	.719**
		Sig.(2-tailed)	.000
		N	315
			.808**
			.000
			315

** . Correlation is significant at the 0.01 level (2-tailed).

The table 5.3 depicted the correlation among self-esteem, multiple-intelligence and teaching competency. The results indicated that there is a significant positive association of multiple intelligence with SE (N=315, $r=0.868$, $p=0.000$). Moreover, teaching competency with SE has strong positive relationship (N=315, $r=0.719$, $p=0.000$). Furthermore, teaching competency with MI has positive significant relationship (N=315, $r=0.808$, $p=0.000$). The p values of each variable are less than significant level (0.05) ($p=0.000 < 0.05$).

Conclusion and Discussion

This study highlighted the relationship of SE with MI. The results indicated positive significant relationship as $p (0.000 < 0.05)$. The results are in line with Rosli et al. (2012); Sahay (2019); Saadat et al. (2012) who found positive significant association between SE and MI. The correlational analysis of variables were carried out on ($n = 365$) sample teachers. In addition, current research examined the significant positive association between SE and teaching competency. The results indicated that teachers with high self-esteem can also increase their competencies in teaching and learning process. Passi and Lalita (2011); Bakhru (2017) supported these evidence. The current research examined the relationship between MI and teaching competency. Sahay (2019); Ghaznavi et al. (2021) and Ilanlou and Zand (2011) reported that MI and teaching competency has positive relationship. Apart from all other intelligences, most of teachers reported that they have high interpersonal intelligence as they have strong communication skills. Being the teacher who is well in communication can also have high interpersonal communication skills. These results are in line with Dolati and Tahriri (2017); Abdiand Rostami (2012); Ghamrawi (2014); Yalmanci and Gozum (2013) and Yaumi et al. (2018) who also reported the same results in their studies. In this study, least of the teachers reported that they have strong visualization skills i.e. spatial intelligence, as they can deal with

spatial judgement and visualize the things in mind. These results found consistent with Hanafin (2014); Lei et al. (2021) and Shearer (2018) who also reported the same results in their studies.

The teacher portrayed skills, which also increase their competency skills in classroom. Most of the teachers outperformed their competency skills and when this phenomenon was investigated along with their intelligences and the results indicated that the teachers with high intelligence or skills have positive association or impact on competency skills, which are needed for effective learning process. As reported above, the indicators of self-esteem and multiple-intelligence are particularly same. Therefore, the teachers with high self-esteem have also high multiple-intelligence skills. In addition, teaching competencies depends upon the skills of individual. The more skills a teacher has, the more competencies he or she showed in classroom. Consequently, all these variables are correlated with each other.

Recommendations

The following recommendations can be made based on results of study.

- i. The results of this study indicated that SE, MI and teaching competencies are correlated with each other. It may be suggested that teachers need to develop SE of students by designing activities i.e. quizzes, trust activities, positive rephrasing activities, games for students that boost self-esteem. These activities automatically increase students' intelligences, which may help them in life in terms of academic success.
- ii. It is recommended that the curriculum developers need to focus on such strategies that increases self-esteem of students. These strategies may help them to increase their skills, which is necessary for academic success.

References

- Abdi, A., & Rostami, M. (2012). The effect multiple intelligences based instruction on students' creative thinking ability at 5th grade in primary school. *Procedia Social and Behavioral Sciences*, 47(2), 105-108.
- 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.
- Apichai, S., Sirisatayawong, P., Chupradit, S., & Khamchai, S. (2019). A study of self-esteem and academic achievement of undergraduate students with physical or locomotion disability in Chiang Mai University. *Journal of Associated Medical Sciences*, 52(2), 112-118.
- Aziz, F., Akhtar, M. S., & Rauf, M. (2014). Relationship between teachers' competencies and motivation at higher education level in Pakistan. *Pakistan Annual Research Journal*, 50(1), 163-174.
- Bakhru, K. M. (2017). Personal competencies for effective teaching: A review based study. *Educational Quest-An International Journal of Education and Applied Social Sciences*, 8(2), 297-303.
- Barry, D. (2020). The value of the Australian professional standards for teachers as an evaluation tool to enhance teacher quality [Unpublished 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\(493-504\)](https://doi.org/10.36902/sjesr-vol4-iss1-2021(493-504))
- 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 modelling - A literature survey. *Journal of Business and Management*, 16(1), 14–22. <http://doi.org/10.9790/487X-16111422>
- Currie, K. L. (2003). Multiple intelligence theory and the ESL classroom--preliminary considerations. *The Internet TESL Journal*, 4(4), 263-270.
- Cut Fitriani, M. A., & Usman, N. (2017). Kompetensi profesional guru dalam pengelolaan pembelajaran di MTs Muhammadiyah Banda Aceh. *Journal Administrasi Pendidikan: Program Pascasarjana Unsyiah*, 5(2), 115-125.
- Day, C., & Gu, Q. (2010). *The New Lives of Teachers* (1st ed.). Routledge. [https://doi.org/10.1108/S1479-3687\(2013\)0000019020](https://doi.org/10.1108/S1479-3687(2013)0000019020)
- Dolati, Z., & Tahiri, A. (2017). EFL teachers' multiple intelligences and their classroom practice. *SAGE Open*, 7(3), 21-29.
- Ghamrawi, N. (2014). Multiple intelligences and ESL teaching and learning: An investigation in KG II classrooms in one private school in Beirut, Lebanon. *Journal of Advanced Academics*, 25(2), 25-46.
- Ghaznavi, N., Haddad Narafshan, M., & Tajadini, M. (2021). The implementation of a multiple intelligences teaching approach: Classroom engagement and physically disabled learners. *Cogent Psychology*, 8(1), 188-202.
- Hanafin, J. (2014). Multiple intelligences theory, action research, and teacher professional development: The Irish MI project. *Australian Journal of Teacher Education*, 39(4), 126-142.
- Ilanlou, M., & Zand, M. (2011). Professional competencies of teachers and the qualitative evaluation. *Procedia-Social and Behavioral Sciences*, 29(2), 1143-1150.
- Kaur, M., & Talwar, A. (2014). Teaching competency of secondary school teachers in relation to emotional intelligence. *International Journal of Learning, Teaching, and Educational Research*, 3(1), 83-90.
- Lakshminarayanan, S., Pai, Y.P. & Ramaprasad, B.S. (2016). Competency need assessment: a gap analytic approach. *Industrial and Commercial Training*, 48(8), 423–430.
- Lei, D. Y., Cheng, J. H., Chen, C. M., Huang, K. P., & James Chou, C. (2021). Discussion of teaching with multiple intelligences to corporate employees' learning achievement and learning motivation. *Frontiers in Psychology*, 12(7), 45-50.
- Liu, H. J., & Chen, T. H. (2013). Foreign Language Anxiety in Young Learners: How It Relates to Multiple Intelligences, Learner Attitudes, and Perceived Competence. *Journal of Language Teaching & Research*, 4(5), 112-119.
- Mangal, S. K. (2002). *Advanced Educational Psychology*. New Delhi: PHI Learning Private Limited.
- Medley, D.M. (1982). Teacher effectiveness, in Mitzel, H.E., *Encyclopedia of Educational Research*. New York: The Free Press.
- Paramita, E., Lumbanraja, P., & Absah, Y. (2018). The effect of organizational culture and commitment to performance of employees with working satisfaction as moderation variables in Pt. Bank Mandiri (Persero) Area Medan. *Global Journal of Management and Business Research*, 18(11), 25–32.

- Parveen, F., Nazir, N., & Zamir, S. (2021). Analyzing teacher competency: knowledge, skills, and aptitude of secondary school teachers. *UMT Education Review*, 4(1), 58-79.
- Passi, B.K., & Lalita, M.S. (2011). *General Teaching Competency Scale*. Agra: National Psychological Research Cell.
- Rabo, U. M. (2018). Relationship between teacher competence, school climate and academic performance of public senior secondary school students in Sokoto State, Nigeria. *International Journal of Humanities and Social Science Invention (IJHSSI)*, 7(11), 34-40.
- Rahmani, P. (2011). The relationship between self-esteem, achievement goals and academic achievement among the primary school students. *Procedia-Social and Behavioral Sciences*, 29(3), 803-808.
- Rosenberg, M. (1965). Rosenberg self-esteem scale (RSE). Acceptance and commitment therapy. *Measures package*, 61(52), 18-24.
- Rosli, Y., Othman, H., Ishak, I., Lubis, S. H., Saat, N. Z. M., & Omar, B. (2012). Self-esteem and academic performance relationship amongst the second year undergraduate students of Universiti Kebangsaan Malaysia, Kuala Lumpur Campus. *Procedia-Social and Behavioral Sciences*, 60(2), 582-589.
- Rusmini, E., & Pargito, P. (2018). Kompetensi Pedagogik Guru Mata Pelajaran Ilmu Pengetahuan Sosial SMPN 2 Sidomulyo. *Journal of Social Studies*, 6(1), 445-450.
- Saad, I. (2016). Education in Pakistan: Perspective, failures and prospects. *Journal of Education & Social Sciences*, 4(1), 32-52.
- Saadat, M., Ghasemzadeh, A., & Soleimani, M. (2012). Self-esteem in Iranian university students and its relationship with academic achievement. *Procedia-Social and Behavioral Sciences*, 31(5), 10-14.
- Sahay, M. (2019). Relationship between multiple intelligence, self-esteem and teacher competency among secondary school teachers. *People: International Journal of Social Sciences*, 5(1), 460-475.
- Siri, A., Supartha, I. W. G., Sukaatmadja, I. P. G., & Rahyuda, A. G. (2020). Does teacher competence and commitment improve teacher's professionalism. *Cogent Business & Management*, 7(1), 178-199.
- Tirri, K., & Nokelainen, P. (2012). *Measuring multiple intelligences and moral sensitivities in education (Vol. 5)*. Springer Science & Business Media.
- Ümmet, D. (2015). Self-esteem among college students: A study of satisfaction of basic psychological needs and some variables. *Procedia-Social and Behavioral Sciences*, 174(7), 1623-1629.
- Viinikka, K., & Ubani, M. (2019). The expectations of finish RE student teachers of their professional development in their academic studies in the light of twenty-first-century skills. *Journal of Beliefs and Values*, 40(4), 447-463. <https://doi.org/10.1080/13617672.2019.1618153>
- Yalmanci, S. G., & Gozum, A. C. (2013). The effects of multiple intelligence theory based teaching on students' achievement and retention of knowledge (Example of the enzymes subject). *International Journal on New Trends in Education and their Implications*, 4(3), 27-36.
- Yaumi, M., Sirate, F. S., & Patak, A. A. (2018). Investigating multiple intelligence-based instructions approach on performance improvement of Indonesian elementary madrasah teachers. *Sage Open*, 8(4), 245-254.