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An Investigation into the Teachers' Intelligences on Their Teaching Strategies at Secondary Level in Khyber Pakhtunkhwa Province of Pakistan

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Abstract
The study was designed to investigate teachers' intelligence on their teaching strategies. The study explored questions concerning multiple intelligences of teachers and correlation between teachers' levels of multiple intelligences and their teaching strategies. The respondents of the study were 148 males and 108 females secondary school teachers, selected proportionally (35 % of the area population) from both rural and urban areas of district Peshawar, the capital of Khyber Pakhtunkhwa province. A multiple intelligences questionnaire and a teaching strategies questionnaire were administered to the participants. Results indicated that teachers possess nine multiple intelligences but the levels of these nine intelligences were different from individual to individual. However, the teaching strategies of rural and urban school teachers were observed in coherence with each other. It was further noted that the levels of multiple intelligences were significantly correlated with the teaching strategies teachers used in their classes. The implication of the results was explained in the terms of teachers, students, and other stakeholders and it was suggested that the policymakers and curriculum developers in Pakistan need to concentrate on the capacity enhancement of instructors in alignment to their different intellectual qualities to viably improve their teaching aptitudes and professional development.
Keywords: Multiple Intelligence, Teaching Strategies, teachers, teaching aptitude, students' achievements

Introduction

Teachers are considered the center of the axis in any education system. knowledge, qualities, skills of teachers dictate the excellence of overall system of education(Farooq, 1990). The National Education Commission (2009) reported that in terms of quality, the education system of Pakistan earns the lowest position in South Asia. Among other factors, low quality of teaching at public sector was identified a big issue of the date (Ali, 2012). The secondary and higher secondary school system which prepare young educated peoples are also suffering from this dilemma of the poor quality of teaching system, where the obsolete instructional methods emphasize students on cramming instead of conceptual learning. The previous reports(Anwar & Bhutta, 2010; Shafa, 2004;World Bank, 2004) revealed that in most of the classrooms in mathematics, literature and science subjects, the most practiced instructional methods compel students to memorize the learning contents with the partial intention of high scoring in Regional Board Examinations.

Humanistic psychology infers that learner should be independent and the they should have enough opportunities to enhance their curiosity and enthusiasm for learning (Akram & Zepeda, 2015). Aga Khan Education Service (2005) reported that in government schools, mostly instructional methods are teacher-centered which do not cultivate and boost student's involvement. "Rote memorization and moral dictates go hand in hand with a punitive school environment" (p. 24). The dilemma of poor quality education become more chronic in rural areas due to insufficient requisite resources, staff and the available teachers are either partially or fully unaware of the modern teaching strategies.

Gardner in his theory of Multiple Intelligences (1983) claimed that a person has a range of intellectual abilities with different degrees. Guild (2001) stated that teaching strategies can be classified as a set of strategies that support teachers to meet each student's needs by making sure flexibility in the teaching contents, the ways of teaching, and ways of students' demonstration in what they have learned. In the process of teaching, the great effect of the theory is to build the inventiveness of teachers in creating strategies for teaching(Guild, 2001). The reason being was that, when teachers and planners thought about exercises for each type of intelligence, they unavoidably broadend their strategies and collection for their teaching procedure, which ultimately developed distinctive and unique methods (Demirel, 2000).

Gardner's *theory* stated that every individual can hold nine intelligence domains: Linguistic intelligence, logical intelligence, visual intelligence, musical intelligence, kinesthetic intelligence, intrapersonal intelligence, naturalistic intelligence, interpersonal intelligence, and existentialistic intelligence(Gardner, 1999). Armstrong (2009) defined these intelligences as Linguistics intelligence is utilizing words and language in understanding and expression of knowledge, teachers with this intellect mostly teach in the form of a story, group discussion,

students, public speaking, provide books about topics. The logical domain includes the utilization of coherent thinking and critical thinking teachers with this intellect mostly practices critical thinking exercises, logical questioning exercise, making connections and order between the topics, cause, and effect. An Visual intelligence includes the ability to describe visually the learning content. Teachers with this intellect exercises visualize the learning content, drawing images of the material, demonstrate the learning concept by building a model of it, Show videos of the learning content (Armstrong, 2009).

Armstrong (2009) further stated that Musical domain includes detection of pitch and tone and patterns within sounds. Teachers with this intellect exercises play appropriate background music or sounds that relate to a specific lesson, teach different concepts in a musical tune, the teacher provides books of number games, word pattern games, use recorded music that amplifies the lesson content. According to Gardner (2003), kinesthetic intellegence enable someone physically to accomplish tasks or communicate ideas. Teachers with this intellect exercises body answers, role playing, do experiments and projects, see and touch the things. Gardner (2003) further revealed that Interpersonal intelligence is the ability of comprised of capacity to sense the feelings, points of view, and inspirations of others. Teachers having this intellect exercises personalization and characterization of lessons, people interaction, share questions answers, cooperative group work. While intrapersonal intelligence is to understand one's inner-self. Teachers with this intellect exercise express opinions and feelings, make choice in learning activities, use emotions, personal connections. Naturalistic intelligence includes understanding the natural world and living things within the natural world. Teachers with this intellect exercises teaching in a natural setting, bring nature into the class, make crafts and projects out of natural materials, compelling students to learn through observation and senses, while existentialistic intelligence is the skill of discovering one's self as of the greatest scope for the world. Teachers with this intellect student's preferences in the learning contents and its applications at the classroom level, school or community level, or additional perspective of expert resource person on specific topics, present the learning concepts in different and new frameworks (Armstrong, 2009). Instructing in the twenty-first century emphasizes assorted qualities and identifying that every student has his or her own particular set of qualities, needs, interests and learning styles. In today's classrooms, teachers are relied upon, to give evenhanded chances to students to accomplish their extreme capability in all phases of development. Students come into the classroom as people with remarkable culture, ethnicities, convictions and different states of mind (McFarlane, 2011).

MI theory introduces a model that permits educators to move from lower-order thinking exercises into a more extensive scope of complex intellectual tasks that assisted students to become better prepared for higher ordered cognitive skills. In the process of teaching, the great effect of the theory is to build the inventiveness of teachers in creating strategies for teaching. The reason being was that, when teachers and planners thought about exercises for each type of intelligence, they unavoidably broaden their strategies and collection for their teaching procedure, which ultimately developed distinctive and unique methods. It was trusted and expected that instructors grasped these differences by adjusting their instructing practices to better meet the capacities, identities and learning styles of their students (Levy & Gayler, 2008). Through the implementation of different instructional methods, while teaching o students' through multiple intelligence teaching strategies, instructors can viably address students' issues and promote students' engagement, inspiration, and investment (Gable, Reis, & Elliot, 2000).

The study has incorporated multiple intelligence theory developed by Howard Gardner in 1983. In advanced countries, teaching strategies aligned with this theory are already gaining popularity and have been implemented into course curriculum at primary, elementary and secondary levels, with an aim to nourish student's learning and academic accomplishment (Koksal & Yel, 2007; Ozdener& Ozcoban, 2004; Ozdermir et al., 2006). However, the literature failed to provide research data related to the distribution of MI and their impact on teaching strategies in Pakistan to the best of researcher knowledge, so the study might attempt to fill some of the gaps in the research on Multiple Intelligences in Khyber Pakhtunkhwa, Pakistan. This study also determines the relation between teachers' levels of multiple intelligences and their teaching strategies which ultimately able teachers to pick up the most appropriate teaching strategies according to their level of intelligence. It might enable the school teachers to make the lesson's main points and contents comprehensible, and educate students with realistic and fascinating ways to enhance the lessons and emphasize learning.

Objectives

I. To find out different teaching strategies, secondary school teachers' uses in their classrooms.
II. To identify the levels of nine multiple intelligences of male and female secondary school teachers.

Methods and Procedure

This study has adopted the descriptive survey design in which questionnaires were used for data collection purpose. The respondents of the study were 148 males and 108 females secondary school teachers, selected proportionally (35 % of the area population) from both rural and urban areas of district Peshawar, the capital of

Khyber Pakhtunkhwa province. Two questionnaires were used in the study, Multiple Intelligence questionnaire and teaching strategies questionnaire. Multiple Intelligence questionnaireconsisted of 45 items to assess various intellectual abilities of the teachers and teaching strategies questionnaire consisted of thirty-six teaching strategies, To compare the means of the teaching strategies and multiple intelligences on both questionnaires, t-test for independentsamples was used, using an alpha level of 0.05. While Pearson r correlation coefficient was used to analyze the relationship between Multiple intelligences of the secondary school teachers and the teaching strategies they use in their classrooms.

Results and Discussion

The demographic information revealed that majority of the study participants were male i.e. (57.7%) while (42.3 %) indicated their gender as female as illustrated in Table-1. Participants from the rural and urban area participated nearly with the same range. (50.6%) participants mentioned their school location as urban while (49.5%) participants were working in rural area schools. similarly, from an urban area (50.7%) male, (50.5%) female and from rural area (49.3%) male and (49.5%) participants participated in the study respectively.

Table-1: Profile of Teacher's Gender and their School Location

School Location/ Gender	Male	Percent	Female	Percent	Total
Urban Area	74	50.7 %	54	50.5 %	128
Rural Area	72	49.3 %	53	49.5 %	125
Total	146	57.7 %	107	42 %	253

Data in Table-2 presented that among the levels of nine multiple intelligence, approximately the level of Existentialistic Intelligence was found the dominant intelligence (M=3.20, SD=.513) followed by Linguistics intelligence (M=3.11, SD=.419) and Interpersonal intelligence (M=3.10, SD=.473). while the lowest mean (M=2.71 SD=.477) was observed for the level of kinesthetic intelligence. The other intelligence observed were Visual intelligence (M=3.09, SD=.527), Naturalistic intelligence (M=3.09, SD=.484), Logical/ mathematical intelligence (M=3.03, SD=.493), Intrapersonal intelligence (M=2.90, SD=.563) and Musical intelligence (M=2.73, SD=.529).

Table-2: Descriptive Statistics of Teachers' Multiple Intelligences and Teaching Strategies

Type of MI	N	Mean	Std. Dev	Type of TS	Mean	Std. Dev
Linguistics intelligence	253	3.11	.419	Linguistics Teaching	2.76	.551
Logical intelligence	253	3.03	.493	Logical teaching	3.20	.470
Visual intelligence	253	3.09	.527	Visual Teaching	2.38	.691
Musical intelligence	253	2.73	.529	Musical Teaching	1.72	.736
Kinesthetic intelligence	253	2.71	.477	Kinesthetic Teaching	2.86	.610
Interpersonal intelligence	253	3.10	.473	Interpersonal Teaching	2.89	.489
Intrapersonal intelligence	253	2.90	.563	Intrapersonal Teaching	3.04	.561
Naturalistic intelligence	253	3.09	.484	Naturalistic Teaching	2.43	.688
Existentialistic intelligence	253	3.20	.513	Existentialistic Teaching	2.74	.614

Table-2 data further reveled that among all teaching strategies, the mean of Logical/mathematical teaching strategies (M=3.20, SD=.470) was found to be high while the mean of musical teaching strategies was found to be the lowest one. The mean of other teaching strategies observed were Intrapersonal Teaching (M=3.04, SD=.561), Interpersonal Teaching (M=2.89 SD=.489), Kinesthetic Teaching (M=2.86, SD=.610), Linguistics Teaching (M=2.76, SD=.551), Existentialistic Teaching (M=2.74, SD=.614), Naturalistic Teaching (M=2.43, SD=.688) and Visual Teaching (M=2.38, SD=.691) respectively.

An independent-samples t-test (alpha level of .05), was used to determine the difference between males and females' levels of multiple intelligence. The test results are shown in table-3.

Table-3: Independent sample t-test for Multiple Intelligences

	F	Sig.	t	df	Sig. (2-tailed)
Linguistics	3.889	.061	-.786	251	.433
Logical	.157	.693	.061	251	.951
Visual	10.968	.001	-2.609	251	.010
Musical	.686	.408	-2.364	251	.19
Kinesthetic	7.328	.007	-2.549	251	.011
Interpersonal	4.086	.056	1.941	251	.057
Intrapersonal	.581	.447	-1.810	251	.071
Naturalistic	.296	.587	-.942	251	.347
Existentialistic	.213	.645	-.936	251	.350

The result of independent-sample t test for determining the difference between male and female levels of multiple intelligences indicated that male and female showed no significant difference in level of linguistics intelligence (t = -.786, p=.433), levels of Logical Intelligence (t = .061, p = .951), Musical Intelligence (t = -.2.364, p = .19), Interpersonal Intelligence (t = 1.941, p = .057), Intrapersonal Intelligence (t = -1.81, p = .071), Naturalistic Intelligence (t = -.942, p = .347) and Existentialistic Intelligence (t = -.936, p = .065), however, for visual intelligence (t = -2.724 and p= .007) and Kinesthetic Intelligence (-2.620 with a p-value of .009), females with (Visual M = 3.19 and Kinesthetic M=2.80) showed significantly high level as compared to male (Visual M 3.02 and Kinesthetic M= 2.65).

To assess the relationship in the Multiple Intelligences of the secondary school teachers and their teaching strategies, Pearson correlation coefficient test was applied. Table-4 illustrated that the Pearson correlation coefficient value (r = +.581, n =253, p = .000) was observed between multiple intelligence and Teaching strategies associated with multiple intelligence.

A significant positive correlation was found between linguistic intelligence, Logical Intelligence, Visual intelligence, Musical intelligence, Interpersonal Intelligence, Kinesthetic Intelligence, Naturalistic Intelligence, Intrapersonal Intelligence, Existentialistic Intelligence and the teaching strategies associated with the intelligence.

Table -4: Multiple Intelligence and Teaching Strategies Correlations

Multiple Intelligence	Respondents	Linguistic Teaching	Logical Teaching	Visual Teaching	Musical Teaching	Kinesthetic Teaching	Interpersonal Teaching	Intrapersonal Teaching	Naturalistic Teaching	Existentialistic Teaching
Linguistic	253	.294**	.149*	.221**	.214**	.233**	.348**	.225**	.392**	.407**
Logical	253	.316**	.193**	.250**	.123	.125*	.356**	.244**	.356**	.295**
Visual	253	.461**	.234**	.299**	.161*	.259**	.397**	.301**	.356**	.407**
Musical	253	.359**	.159*	.311**	.358**	.089	.251**	.298**	.380**	.338**
Kinesthetic	253	.406**	.178**	.339**	.339**	.241**	.413**	.311**	.513**	.377**
Interpersonal	253	.295**	.175**	.181**	.167**	.136*	.273**	.191**	.246**	.235**
Intrapersonal	253	.323**	.119	.415**	.393**	.077	.272**	.231**	.431**	.343**
Naturalistic	253	.357**	.312**	.429**	.314**	.212**	.314**	.276**	.476**	.401**
Existentialistic	253	.403**	.143*	.247**	.263**	.169**	.310**	.262**	.384**	.302**

DISCUSSION

The findings of the study indicates that all secondary school male-female teachers possessed all types of multiple intelligence with different levels (range). The existentialistic intelligence was found to be high and kinesthetic intelligence level was low among the nine types of intelligence of secondary school teachers. The results are in coherence with the study of Chan (2005) and Emmiyati, Rasyid, Rahman, Arsyad, and Dirawan (2014). Emmiyati et al. (2014), and Chan (2005) found Linguistic Intelligence was dominant of all the other intelligences while Naturalistic Intelligence was observed at the lowest position. In another study of Halm (2001), it was observed that faculty members and students of the associate degree programs showed dominance

in intrapersonal intelligence and interpersonal intelligence while musical and naturalistic intelligence was observed at lowest rank. The results of these study in coherence with the findings of the current study. Results indicate that combination of different multiple intelligences and difference in their positioning from highest to lowest varies from individual to individual and the weakest intelligences can be improved. As Armstrong (2009) pointed that the significant point of MI theory is that individuals can enhance their weakest intelligences to a mastery level. The position of the intelligences on highest to lowest may depend upon biological factors (genetic and heredity) autobiography (mutual understanding with family, friends, and community) and cultural factors norms, values, living style and area of residency).

The study found no statistically significant gender difference in secondary school teacher's levels of multipl intelligence except for the levels of visual intelligence and kinesthetic intelligence, which were higher in female as compared to male. Visual intelligence is considered a skill of visualizing the thing in mind while kinesthetic intelligence is an ability to involve someone physically in the learning process.

Results of this study match with the findings of Abdul Aziz (2008), who concluded that female faculty members showed a significant difference in verbal-linguistic, logical- mathematical, body-kinesthetic, visual-spatial, interpersonal and intrapersonal intelligence with a male profile of intelligence. The findings are also in accord with the study of Snyder (1999). He found that female students were stronger on intrapersonal intelligence, linguistic intelligence, musical intelligence, visual intelligence and intrapersonal intelligence. male students were stronger in logical intelligence, interpersonal intelligence, and kinesthetic intelligence.

However, the findings contradict with some other studies like Asha, Iyer, and Sen (2007), Hanafiyeh (2013) and McClellan (2006). Asha et al. (2007) found no male and female were not significantly different in their levels of multiple intelligences except in Linguistic and Musical intelligences. Similarly, Hanafiyeh (2013) results indicated that male and female respondents were different in their level of linguistics intelligence, in the rest of intelligences, no significant difference was found. The generalization of findings based on this expected pattern of findings might be limited by the social influence and age of the participants. As Ali, Suliman, Kareem, and Iqbal (2009) reported that the possible factors which might affect the multiple intelligence difference in the two genders are social influences. Social influences included responsibilities, performance, external influence, self-perception, and education. Gardner (1993) indicated that multiple intelligences have a social component. From this point of view, the gender wise distinction in multiple intelligence is not genetic, but instead social the present study participants were secondary school teachers of Pakistan, while in the other studies participants were selected from German, Britain, Hawaii, and Singapore, from this point of view, different results of the studies might be represented by conceivable diverse cultures. Subsequently, the findings may enhance and improve teachers' self-confidence and capacities which could help them to develop their weakest areas of intelligences.

The study provides an interesting finding regarding the teaching strategies used by urban and rural areas school teachers. The results indicated that both rural and urban secondary school teachers are highly qualified and both are not significantly different in the mean of their highest qualification. The resultant no difference in teaching strategies might be due to the participant's high level of education as Wilson, Floden, and Ferrini-Mundy (2001) also concluded that there is a strong relationship between teacher education and teachers' effectiveness.

It proves that adapting teaching strategies based on multiple intelligences are not only beneficial for teachers but it has also a significant impact on students' performance. According to Temur (2007) students are academically more successful and more confident when curricular learning experiences are explained through nine intellectual domains.

The results further indicatethat levels of multiple intelligences of the secondary school teachers are significantly correlated with the teaching strategies they use in their classes. The findings are in line with the results of Serin, Serin, Yavuz, and Muhammedzade (2009), who found that multiple intelligences of the teachers have a foretelling effect on teaching strategies. These findings are highly significant, as revealed by Ozdermir, Guneysu, and Tekkaya (2006), the relationship of multiple intelligences and their associated teaching strategies strongly matter in the students' academic performance, the success of learner and long-term learning. The current findings are also highly close to the findings of the Sulaiman, Abdurahman, and Rahim (2010) findings which reported that the levels of multiple intelligences are highly correlated with their teaching strategies. Same findings are yield by Walker (1998), who found that Linguistics, Logical, Musical, Interpersonal, Intrapersonal, Bodily/Kinesthetic, Mathematical, and Spatial/Visual were found highly correlated with their concern teaching strategies. Peduk and Baran (2009) also found a strong impact of the logical intelligence on the durability of mathematics education.

However, the current findings are somewhat contradicting with the findings of Al Sulim (2012) who found inconsistency in the teaching strategies related with logical-mathematical and Intrapersonal intelligence. However, teaching strategies related with naturalist intelligence, kinesthetic intelligence, spatial intelligence was perfectly consistent with their concern teaching strategies. Mujahid (2008) presented the similar findings that the

teaching strategies of logical-mathematical intelligence and Intrapersonal intelligence were Inconsistent. Durmaz (2005) findings revealed that the naturalistic intelligence, interpersonal intelligence, and spatial/visual intelligence, showed a momentous foretelling on teaching strategies. However, the verbal/linguistic, intrapersonal, bodily/kinesthetic, logical/mathematical, and musical intelligence represented no expressive possessions on teaching strategies and learning styles. Bailey and Williams-Black (2008) took multiple intelligence as a stimulus which enables the students to learn. In 'The Quest for Multiple Intelligences' Smerechansky-Metzger (1995) also suggested the instructors provide students ample learning opportunities by using the multiple intelligence theory in their classrooms.

Like Highland, McNally, and Peart (1999) and Al-Khatib and Hamza (2009), emphasized the need of considering the levels of MI achieved by the learners, selecting the most proper techniques, and encouraging the instructors and learners in selecting the instructing procedures that suit their MI. According to Heikkinen (1985), educators themselves have a favored technique for seeing and handling knowledge and it is coherent that instructors will convey and convey their lesson that is perfect with their potential. The current research results support that behavior, skills, and concepts are developed by conducting activities related to the intelligence power of children through the use of multiple intelligence areas.

CONCLUSION

Gardner theory of multiple intelligence is a widely-accepted theory around the world with varying results and is implemented around different educational levels such as elementary, secondary and higher secondary levels and contexts including various personality traits of respondents and organization in behavioral patterns. The study has presented data on intelligences and teaching strategies of teachers (male and female) in one of the emerging area of Pakistan, district Peshawar. The study has incorporated Howard Gardner Theory of Multiple intelligence, keeping in mind the participants with different educational background coming from the rural and urban area of district Peshawar. Among the nine levels of multiple intelligences, the level of linguistic, logical, interpersonal, musical, intrapersonal, naturalistic and existentialistic intelligence were not significantly different in both (male and female) genders whereas, male and female were found significantly different in their levels of visual intelligence and kinesthetic intelligence. Females in the study showed comparatively higher levels of visual and kinesthetic intelligence as compared to males, which may depend on factors like their activities, interest, artistic composition, chances of seeing visual presentations etc (Gilakjani, 2011; Shahzada, Khan, Noor, & Rahman, 2014). It is inferred that better knowledge and understanding of levels of different multiple intelligence may become essential with the increase in sizes of the classroom and advancement in technology, continue to mold the types of students entering higher education.

Teaching strategies for teachers of high schools coming from different geographical locations i.e. rural and urban were found in coherence with each other and no significant difference was observed between them. Logical/Mathematical teaching strategies emerged to be the most dominant strategies of all secondary school teachers. Intrapersonal, Interpersonal, and Kinesthetic Teaching strategies fell in the upper levels of the strategies while it was observed that on the average Linguistics, Existentialistic, Naturalistic, and Visual Teaching strategies fall in the moderate shade of teaching strategies. the Musical teaching strategy was reported on the lowest shade of the scale and this lowest rating strategy rated by both the genders of secondary school teachers might refer to the culture of the society (area under study) where music and musical instruments have no dominant position relating to education (Shahzada et al., 2014)

The overall perspectives of the respondents were in alignment with the theory under thought, shows that teachers with different demographics can possibly enhance their abilities crediting to quality instruction. Though minor individual differences were seen in the responses for both variables (multiple intelligences and teaching strategies), but their mutual reliance and level of consistency indicates the significance of the theory in the field of teaching in general and for secondary school teachers of district Peshawar at particular.

References

Abaci, R. (2007). The relationships between university students multiple intelligence level and some variables. *International Journal of Human Sciences, 4*(1).

Akbas, A. (2004). *The Effects of Multiple Intelligences Based Instruction on Sixth Graders Science Achievement and Attitudes Towars Science.* METU. www.bookzz.com database.

Akram, M., & Zepeda, S. J. (2015). Development and Validation ofTteacher Self Assessment Instrument by Muhammad Akram. *Journal of Research and Reflections in Education, 9*(2), 134-148.

Al-Khatib, & Hamza. (2009). The Effectiveness of the Development Unit of the Decision of History In the Light of Multiple Intelligences on Academic Achievement and Critical Thinking in the third Grade Secondary Students In Makkah. *American Journal of Psychology, 15*, 201–293.

Al Sulim, G. H. (2012). Prediction of the correlation between the strategies of the teaching methods and the Multiple Intelligence of some graduate female students at Imam Mohammad Ibn Saud Islamic

University. *Procedia-Social and Behavioral Sciences, 47*, 1268-1275.
Ali, M. S., Suliman, M. I., Kareem, A., & Iqbal, M. (2009). Comparison of gender performance on an intelligence test among medical students. *J Ayub Med Coll Abbottabad, 21*(3), 163-165.
Anwar, N., & Bhutta, S. (2010). Students' attitude towards science: A study from rural areas of Sindh and Balochistan. *Unpublished research paper). Institute for Educational Development, Aga Khan University, Karachi, Pakistan*.
Armstrong, T. (2009). *Multiple intelligences in the classroom*: Ascd.
Bailey, J. P., & Williams-Black, T. H. (2008). Differentiated instruction: Three teachers' perspectives. *College reading association yearbook, 29*, 133-151.
Bank, W. (2004). implementation completion report on a credit to Islamic Republic of Pakistan for a Northern Education Project.
Barrington, E. (2004). Teaching to student diversity in higher education: How multiple intelligence theory can help. *Teaching in Higher Education, 9*(4), 421-434.
Bas, G., & Beyhan, Ö. (2010). Effects of Multiple Intelligences Supported Project-Based Learning on Students' Achievement Levels and Attitudes towards English Lesson. *International Electronic Journal of Elementary Education, 2*(3), 365-386.
Chan, D. W. (2005). Perceived multiple intelligences and learning preferences among Chinese gifted students in Hong Kong. *Journal for the Education of the Gifted, 29*(2), 187-212.
Coskungonullu, R. (1998). The effects of multiple intelligences theory on 5th graders' mathematics ability. *Unpublished maters' thesis, Middle East Technical University, Institute of Social Sci-, Middle East Technical University, Institute of Social Sci-Middle East Technical University, Institute of Social Sciences, Ankara*.
Demirel, O. (2000). Art of Teaching from Planning to Practice. *Ankara: Pegem A Publishing*.
Denig, S. (2004). Multiple intelligences and learning styles: Two complementary dimensions. *The Teachers College Record, 106*(1), 96-111.
Douglas, O., Burton, K. S., & Reese-Durham, N. (2008). The effects of the multiple intelligence teaching strategy on the academic achievement of eighth grade math students. *Journal of instructional psychology, 35*(2), 182-188.
Durmaz, H., & Ozyıldırım, H. (2005). To investigate the relationship between science and the chemistry classroom teaching students towards fields with multiple intelligences and attitudes chemistry and success in the Turkish language. . *Faculty of Education Journal,Gazi University Kırsehir, 6*(1), 67-76.
Elibol, O. (2000). *Evaluation of Multiple Intelligence Theory of kindergarten children by age group of Six*. Ankara Hacettepe University.
Emmiyati, N., Rasyid, M. A., Rahman, M. A., Arsyad, A., & Dirawan, G. D. (2014). Multiple Intelligences Profiles of Junior Secondary School Students in Indonesia. *International Education Studies, 7*(11), 103.
Farooq, R. (1990). *A survey study on the problems and prospects of teacher education in Pakistan*: Academy of Educational Planning and Management, History of Education.
Fasoli, L., Frawley, J., Ober, R., D'Arbon, T., & White, N. (2008). An institutional leadership paradigm: Transforming practices, structures and conditions in Indigenous higher education (Final Project Report for The Australian Learning and Teaching Council, Leadership for Excellence in Learning and Teaching Program). *Australia: Australian Catholic University*.
Furnham, A., Shahidi, S., & Baluch, B. (2002). Sex and Culture Differences in Perceptions of Estimated Multiple Intelligence for Self and Family A British-Iranian Comparison. *Journal of Cross-Cultural Psychology, 33*(3), 270-285.
Gable, S. L., Reis, H. T., & Elliot, A. J. (2000). Behavioral activation and inhibition in everyday life. *Journal of personality and social psychology, 78*(6), 1135.
Gardner. (1999). *The disciplined mind*: Simon & Schuster New York.
Gilakjani, A. P. (2011). Visual, auditory, kinaesthetic learning styles and their impacts on English language teaching. *Journal of Studies in Education, 2*(1), 104-113.
Guild, P. B. (2001). Diversity, learning style and culture. *New Horizons for Learning, 1*.
Halm, H. (2001). *Fatimids and Their Traditions of Learning* (Vol. 2): IB Tauris.
Heikkinen, M. (1985). Learning Styles vs. Teaching Styles--Studying the Relationship. *NaSSP Bulletin, 69*(478), 80-85.
Highland, S., McNally, P., & Peart, M. (1999). Improving Student Behavior through the Use of the Multiple Intelligences.
Hoerr, T. (2002). Applying MI in schools. *New Horizons for Learning*.
Katranci, Y., & Bozkuş, F. (2014). Learning styles of prospective mathematics teachers: Kocaeli University Case. *Procedia-Social and Behavioral Sciences, 116*, 328-332.
Koksal, M. S., & Yel, M. (2007). The Effect of Multiple Intelligences Theory (MIT)-based Instruction on

Attitudes Towards the Course, Academic Success, and Permanence of Teaching on the Topic of" Respiratory Systems.". *Educational Sciences: Theory & Practice, 7*(1).

Kornhaber, M. L., Fierros, E. G., & Veenema, S. A. (2004). *Multiple intelligences: Best ideas from research and practice*: Allyn & Bacon.

Levy, S. D., & Gayler, R. (2008). *Vector symbolic architectures: A new building material for artificial general intelligence.* Paper presented at the Proceedings of the 2008 Conference on Artificial General Intelligence 2008: Proceedings of the First AGI Conference.

McFarlane, D. A. (2011). Multiple Intelligences: The Most Effective Platform for Global 21st Century Educational and Instructional Methodologies. *College Quarterly, 14*(2), n2.

Mills, S. (2001). The role of musical intelligence in a multiple intelligences focused elementary school. *International Journal of Education & the Arts, 2*(4).

Mujahid, F. A. (2008). The Effectiveness of The Proposed Program for The Teaching of History in the Light of The Theory of Multiple Intelligences to Develop Historical Thinking Skills in the First Row of Lower Secondary Pupils. *Reading and knowledge Magazine,* 122-154.

Neto, F., Furnham, A., & Paz, R. (2007). Sex and culture differences in perceptions of estimated multiple intelligence for self and family: A Macanese–Portuguese comparison. *International Journal of Psychology, 42*(2), 124-133.

Ozdener, N., & Ozcoban, T. (2004). A Project Based Learning Model's Effectiveness on Computer Courses and Multiple Intelligence Theory. *Educational Sciences: Theory & Practice, 4*(1).

Ozdermir, P. i., Guneysu, S., & Tekkaya, C. (2006). Enhancing learning through. *Journal of Biological Education, 40*(2), 74-78.

Peduk, S. B., & Baran, G. (2009). Research into the Effect of Mathematics Education Based on the Theory of Multiple Intelligences on the Mathematics Ability of 6-Years Age Group. *The Social Sciences, 4*(4), 313-319.

Ribot, N. (2004). My experience using the Multiple intelligences. *New Horizons of Learning, 25*, 2009.

Serin, N. B., Serin, O., Yavuz, M. A., & Muhammedzade, B. (2009). The relationship between the primary teachers' teaching strategies and their strengths in multiple intelligences (Their multiple intelligence types) (Sampling: Izmir and Lefkosa). *Procedia - Social and Behavioral Sciences, 1*(1), 708-712. doi: http://dx.doi.org/10.1016/j.sbspro.2009.01.124

Shafa, M. D. (2004). *Understanding how a government secondary school headteacher addresses school improvement challenges in the Northern Areas of Pakistan*.

Shahzada, G., Khan, U. A., Noor, A., & Rahman, S. (2014). Self-Estimated Multiple Intelligences of Urban & Rural Students. *Journal of Research Journal of Research and Reflections in Education, 8*(2), 116-124.

Sherman, L. (2001). Howard Gardner's multiple intelligences. *Oxford, OH: Miami University. Retrieved November 8*, 2014.

Shore, J. R. (2004). Teacher Education and Multiple Intelligences: A Case Study of Multiple Intelligences and Teacher Efficacy in Two Teacher Preparation Courses. *Teachers College Record, 106*(1), 112-139.

Silver, H. F., Strong, R. W., & Perini, M. J. (2000). *So each may learn: Integrating learning styles and multiple intelligences*: ERIC.

Smerechansky-Metzger, J. A. (1995). The Quest for Multiple Intelligences Using MI Theory to Create Exciting Teaching and Learning Experiences. *Gifted Child Today, 18*(3), 12-15.

Sulaiman, T., Abdurahman, A. R., & Rahim, S. S. A. (2010). Teaching strategies based on multiple intelligences theory among science and mathematics secondary school teachers. *Procedia-Social and Behavioral Sciences, 8*, 512-518.

Temur, O. D. (2007). The Effects of Teaching Activities Prepared According to the Multiple Intelligence Theory on Mathematics Achievements and Permanence of Information Learned by 4th Grade Students. *International Journal of Environmental and Science Education, 2*(4), 86-91.

Thompson, B. R., & Thornton, H. J. (2002). The transition from extrinsic to intrinsic motivation in the college classroom: A first-year experience. *Education, 122*(4), 785.

Willis, J. K., & Johnson, A. N. (2001). Multiply with MI: Using multiple intelligences to master multiplication. *Teaching Children Mathematics, 7*(5), 260.

Wilson, S. M., Floden, R. E., & Ferrini-Mundy, J. (2001). *Teacher Preparation Research: Current Knowledge, Gaps, and Recommendations: a Research Report Prepared for the US Department of Education and the Office for Educational Research and Improvement, February 2001*: Center for the Study of Teaching and Policy.

Yalmanci, S. G., & Gozum, A. (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.