Teaching Styles of Secondary School English Teachers and Learning Styles of their Students and Relationship of Teaching Learning Style Match with Students' Achievement

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Abstract

Present study endeavors to explore the 10th grade secondary schools English teachers' teaching styles and learning styles of their students and examine the potential relationship between teaching learning style match with student's academic achievement as shown by their last secondary school board's results. A sample of forty two schools was selected from the population of Punjab province government schools. All the English class students and their class teachers were the respondent of this study. Relevant information was collected through teaching and learning styles inventories from teachers and their students and English subject result was obtained through their relevant schools. The study employed Grasha's inventory (1996) in diverse learning styles categories related to students and investigate teaching styles related to teachers. Grasha's inventory was employed on five sub categories of the scale. Data was analyzed using descriptive statistics techniques. The results demonstrate that students' learning styles and their achievement in English course, have statistically significance difference among them and statistically significance effect was not found, between students' learning styles and teachers' teaching styles on students English achievements.

Keywords:

Teachers' teaching styles, Students' learning styles, Students' achievement

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Introduction

English is widely spoken global language. It is a global language in all areas of the pure sciences, social sciences, arts, trade, business, commerce and diplomacy. There is no exception from this language, where after the Urdu; it is a main language in all areas of our life. Almost 80% of all types of correspondence in Pakistan are carried out in English (Mueen, 1992), there is no doubt that it is an official language of Pakistan. Being an official language, there is a great need to promote and foster this language as a practical tool and means of communication in education. In this world non-English speaking countries like Pakistan, it is ignored to learn and teach English and due importance is not given to this language, there will be huge decline in the socioeconomic and education, and science and technology, which is the determinants of growth and development of any country. Moreover, without the English language, we will be unable to express and present our nation on the global forum of all nations. It is the language of 'United Nations and International Court of Justice'. Thus, we cannot communicate effectively without command on English Language (Mathews, 1989).

The current situation about the English language in our education institution is not up to the expectations. There is shortage of competent and qualified instructors and language trainers in our schools. Majority of our school students find it difficult to translate their views and ideas in English, which ultimately shows a huge drop out in English subject course. Speaking and writing of English is a challenging and most difficult task for our students. Several reasons may be put forwarded for the state of deterioration and under rated performance in this language. One dilemma of empathic could have been advocated for the pervasiveness of poor performance in English language. A probable reason for this state of misery could be the existence of unit of mismatch concerning teachers' teaching styles and learners' learning styles. In this study focused on match or incompatibility between learning styles and teaching styles.

Review of Literature

There is a long standing debate among the educators on the existence of relationship between teaching-learning styles match and its effect on the performance of the students. Very much literature has been published but this debate seems to be never ending. A number of research studies existed in which researchers have examined the effects of teaching-learning styles match on student's academic performance (Aripin, 2008; Collison, 2000; Felder, 2002; Uzuntiryaki, 2003). All these studies pointed out those students' learning style preferences have considerable effect on their academic

achievements/performances to varying extents. Likewise, in the area of learning styles, some studies pointed out that individual attitude of the students regarding their area of study was affected by their learning style preferences (Mutlu, 2006), and their academic performance can be enhanced by aligning the students' preferred learning styles and their learning environment. On the opposite, a mismatch or non alignment of students' preferred learning styles and their learning environment could reduce the academic achievements of the students (Klavas, 1994; Dunn, 1995 & Andrews, 1990). Moreover, a better understanding of the course and a better positive attitude among the students towards their course, match exists flanked by students preferred erudition styles and their instructors teaching styles (Felder, 1993).

Literature is surveyed the effect of teaching learning style match on the academic achievements of the students in their course work. Some studies claimed that a competition among pupils' learning styles and instructing styles produce a positive effect on students' academic achievement (Mcdonald, 1996; Felder, et al., 2002; Felder, 1988; Goodwin, 1995; Ester, 1994). Quite a number of researches supported the view when learning and teaching styles, match motivation and achievement of the student significantly improved (Stitt-Gohdes, 2003). Felder and Spurlin (2005) argued that when the teaching styles of the instructors' do not match with their learners' styles, the state of mismatch exist between teaching styles which ultimately result in that the students may become inattentive and bored, perform poorly in their tests, become depressed in relation to their studies, course contents and academic curriculum, even there is a feeling among the students to switch over other courses or even leave the school. (Naimie, 2010).

On the other side, some research studies indicated that no significant relationship exist between matching of teaching-learning styles and pupils achievements as evident from last examination grades or course grades. Aragon (2001), Desmedt and Valcke (2003), Stahl (1999), and Tucker (1998), argued that students' learning styles have no effect on their academic performance.

In summary, educators are divided in their research findings. Some researchers believed no relationship exist between teaching-learning styles match and academic performance of the students. Oppositely, some researchers claimed, if learning and teaching styles matched, students get superior exam scores than those whom style do not match. This study further investigates the effects of teaching-learning style match and achievement of the students as pointed out by their final examination marks.

Objectives of the Study

The objectives of the research study were to;

1. Identify the teaching styles of Secondary School English teachers.2. Identify the learning styles of Secondary School English students.3. Establish whether teacher's teaching styles match with student's learning styles.4. Find relationship between teaching-learning style match and students' achievement.

Methodology

Survey research design is the instrument adopted and applied for this study. In this research, investigator anticipated to investigate a sample of approximately participant students of 42 schools and their English language teachers of province of Punjab and evaluating data collected from 42 schools for particular, content area of English subject and students' score in English subject.

The theoretical population of this study contains the whole Government Secondary school English teachers and their students of grade X of Punjab Province. The sample of this study, teachers and their students in the province of Punjab were selected by using, multi-stage probability sampling technique. There are nine administrative Divisions in Punjab. Four schools (from urban & rural 2 male schools each one and two female school) excluding Central Model School, Pilot and Comprehensive secondary Schools were selected randomly from each division using simple balloting method. Two central Model Schools (one male & one female), two Pilot Secondary Schools (one male & one female) and one male & one female Comprehensive Schools were randomly selected from the entire schools, each category in Punjab province. In this way 42 schools were selected from the province of Punjab. All the teachers teaching English to Class X and their students of the selected schools were included in this study.

The study was aimed to classify the Grade X English class students' learning styles and their English instructors' instructing styles and to explore the relationship of match or mismatch of instructing styles with the scores of English subject. To measure X grade students' learning style, Grasha-Riechmann Student Learning Styles Scale (GRLSS), was used in this study. This instrument consists of 60 items with a 5 point Likert scale (strongly disagree=SD.1 to strongly agree=SA.5) this scale, six different types of learning styles can be identified ("competitive, collaborative, avoidant, participant, dependent and independent"). To measure the teaching styles of the English class teachers, Grasha-Riechmann Teaching Style Inventory (GRTSI)

was used in this study. Grasha (1996) developed this inventory which include 40 items it has also same scale (strongly disagree=SD.1 to strongly agree=SA.5). This teaching style inventory measure the teaching styles on five subcategories of teaching styles such as "expert, formal authority, personal model, facilitator and delegator".

Data Presentation and Analysis

Research Question. 1 In order to identify the teaching styles of the instructors, first value of mean scores on the five subcategories of the teaching style inventory were calculated. Then the mean value scores of each subcategory were compared. Grasha, (1996) projected diverse measures and scales ranges.

Table 1 *Teachers Mean Scores on Grasha-Riechmann Teaching Style Inventory*

Teaching Styles	Mean Scores	Rank
Expert	3.98	Moderate
Formal Authority	3.79	Low
Personal Model	4.10	Moderate
Facilitator	4.19	Moderate
Delegator	3.85	Moderate

According to the comparison of mean scores mentioned in the above table, the sample teachers of the schools were found as *Expert*, *Personal Model*, *Facilitator* and *Delegator*.

Research Question. 2 To identify the students' learning styles, first mean scores values of the students on six subcategories of learning styles inventory were computed. Then the values of these mean scores were compared with Grasha (1996) projected diverse measures and scales ranges. The result is shown below:-

Table 2Students' Mean Scores on Grasha-Riechmann Learning Style Scale (N 2942)

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Learning Styles	Student's Mean Scores	Rank
Independent	3.56	Moderate
Avoidant	2,30	Moderate
Collaborative	3.80	High
Dependent	3.88	Moderate
Competitive	3.92	High
Participant	3.94	Moderate

According to the data given in above table, *Collaborative* and *Competitive* learning styles were found.

Research Question 3. In order to investigate the match between the teaching styles of the teachers and learning styles of their students, the dominant teaching and learning styles of all the participating teachers and students were first identified by the researcher. Then, to determine the frequencies of match and mismatch, each student's dominant learning styles were linked to all dominant teaching styles of his/her teacher. Table below presents the data for the total frequencies of teaching and learning styles, match and mismatch in all the schools that were participated in this study.

Table 3Total number of matches/mismatches cases of teaching and learning styles that existed in this study.

Schools	No. of teachers	No. of students	Frequency of style match	Frequency of style mismatch
42	64	2942	1323	3160
			29.5%	70.5%

The data in the above table shows that in most of the schools under study, the frequency of teaching and learning styles match is relatively lower than the frequency of mismatches. This observation describes the fact that there was a vast difference of total match/mismatch frequencies determined for all these schools. The above table further demonstrates that for all secondary schools under this study, there exists 29.5% matching and 70.5% mismatching cases of teaching-learning styles. It is established from the above data that the majority of the school teacher's teaching styles do not match with their students' preferred learning styles. Furthermore, it seems that many students do not have the experience of favorable learning environments to cater their individual learning needs.

Research Question 4. According to Grasha (1996), an individual does not have exclusively one learning style, but rather a combination of learning styles. Therefore, Grasha (1996) developed learning clusters using the six categories of his learning style scale. Grasha, (1996) proposed certain learning styles groups that consist of various grouping of teaching styles. These groups of learning styles are:

- Dependent-Avoidant-Participant-Competitive (Cluster 1)
- Participant-Dependent-Collaborative (Cluster 2)
- Collaborative-Participant-Independent (Cluster 3)
- Independent-Collaborative-Participant (Cluster 4)

Grasha, (1996) suggests that the clusters of learning styles are associated with the clusters of teaching styles. The groups which have high mean scores were clustered by the researcher according to the categories as stated by Grasha (1996). Students' cluster wise learning styles distribution is shown in the table below;

 Table 4

 Cluster-wise distribution of student's learning style.

Cluster	Combination of Learning Styles	Students (%)
Group 1	Dependent - avoidant-participant-competitive	23.5
Group 2	Participant - dependent-collaborative	41.2
Group 3	Collaborative - participant-independent	16.6
Group 4	Independent - collaborative-participant	18.7

The results in the above table demonstrate that 23.5% students' learning styles were identified as participant/dependent/collaborative (**Group 1**). 41.2% of the students learning styles were identified as participant/dependent/collaborative (**Group 2**). 16.6% students learning styles were identified as collaborative-participant-independent (**Group 3**). 18.7% students learning styles were identified as independent/collaborative/participant (**Group 4**) learners. From the above table, it is concluded that a majority of students (64.7%) had more dependent style of learning while remaining (35.3%) students had independent style of learning.

To study whether matching between teachers' teaching style and their students' learning styles had an effect on the level of achievements of students in English subject; the researcher introduced a new variable by grouping students according to a match between their learning styles corresponding to their teacher's teaching styles.

Table 5Student's means and standard deviation scores for English subject in relation to their preferred learning styles.

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Clusters	Combination of learning styles	No. of	Group	SD
		students	Mean	
Group 1	Dependent - avoidant-participant-competitive	712	53.94	7.67
Group 2	Participant - dependent-collaborative	1177	58.32	6.56
Group 3	Collaborative - participant-independent	521	62.17	5.95
Group 4	Independent - collaborative-participant	532	64.81	6.34

Table 6 *Mean and SD scores for Students' English Subject – Match Group*

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Teaching Style Clusters	Learning style	No. of	Group	SD
	Clusters	students	Mean	
Group 1	Group 1	200	52.28	4.09
Group 2	Group 2	133	56.92	7.95
Group 3	Group 3	111	60.20	5.63
Group 4	Group 4	355	64.94	6.72
Total		799	58.58	9.22

The results from the above table demonstrate that the students whom learning styles match with their teacher's teaching styles had a mean score of their English achievements 58.58 % and a standard deviation of 9.22.

Table 7 *Mean and SD scores for Students' English Subject – Mismatch Group*

Learning Style Clusters	No. of students	Group Mean	SD
Group 1	512	51.59	8.63
Group 2	1043	55.75	6.28
Group 3	410	57.89	6.07
Group 4	178	62.64	9.22
Total	2143	58.96	7.79

The results from the above table describe that the students whom learning styles mismatch with their teacher's teaching styles had a mean score of their English achievements 56.97 % and a standard deviation of 7.79.

In order to explore the possible relationship between teaching learning styles match and student's achievement in English subject, a two way analysis of variance was performed between [(4 learning clusters) x (2 match/mismatch)] four learning clusters as shown in table 48 and two teaching learning styles match/mismatch variables. The results of this analysis are given hereunder in table 9.

 Table 8

 One Way ANOVA Results on Achievement score for the match groups

	Sum of Squares	df	Mean Square	F	P
Between Groups	436.92	3	145.64	23.45	0.000
Within Groups	21594.30	2938	7.35		
Total	22031.22	2941			

Table 9Summary of two-way ANOVA result for relationship between matching and mismatching of teaching-learning styles on students achievements.

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Source	df	SS	MS	F	p	η2
Learning Style (A)	3	65712.734	21904.246	153.743	0.000	0.436
Match (B)	1	50.846	50.846	1.136	0.287	0.004
Interaction (AxB)	3	175.628	55.078	1.246	0.398	0.015
Error	2934	66712.564	22.738			
Total	2942	12984575.000				

The results from the above table show that statistically there was no considerable relational effect between students' learning style groups and matching between teaching and learning styles. However, statistically a significant mean difference was found among the various learning styles of the students with respect to their achievements in English subject.

The relationship strength between learning styles and English achievement was assessed by eta squared (n^2) was found to be strong. The f ratio of 1.231 was not significant at .05 levels. Students learning styles accounted for 32.9% of variance in student's English achievement levels. The results from above table demonstrated that statistically no significant effect was found between teaching-learning styles match on students' achievements.

Summary

The present study was a descriptive study based on a survey research. The study aimed to identify learners' styles of learning English at 10th grade and teaching styles of 10th grade English class teachers and to find out whether students' learning styles, the difference between teachers' teaching styles and their students' learning styles. The further aimed to investigate whether any match exist between teachers' teaching styles and their students' learning styles and most important to examine possible relationship between teaching-learning style match and students achievement in English subject. The study was conducted in the government schools of the province of Punjab.

Statistical analysis of the relationships between degree of match scores and students' academic achievement yielded low correlations in the English subject area. The relationship strength between learning styles and English achievement was assessed by eta squared (η 2) was found to be strong. The f ratio of 1.231 was not significant at .05 levels. Students learning styles accounted for 32.9% of variance in student's English achievement levels. The evidence from the statistical results demonstrated that no significance impact of matching teaching-learning styles on students' achievements was found.

Discussion

The main purpose of this study was to investigate whether teaching styles of 10^{th} grade English teachers match with the learning styles of their students and the effect of teaching-learning style match on the academic achievements of the students. The results showed that there was a statistically significant difference among students with different learning styles in terms of English achievements. Students with learning styles of independent/collaborative/participant had higher achievements score then the students from the other three groups. This result supported the findings of other studies in the literature indicating that students' learning styles had a significant influence on their achievements (Mathews, 1996; Collison, 2000; Synder, 2000; Cano-Garcia & Hewitt-Hughes, 2000; Letele, 2013).

When the English course means scores of students in four learning style groups were examined, an increase was found in student's mean scores belonging from learning style groups 1 and learning style group 2 to learning styles groups 3 and learning style group 4. Group 1 and group 2 exhibited dependent styles, whereas groups 3 and group 4 had independent styles. This means students having independent learning styles showed high achievement than the students who had dependent learning styles. Independent learning style students appeared to be more

confident as regard to their learning abilities. They like to learn course material that was important to them. They prefer to study alone on a project or their classroom assignments. They consider their teacher as a facilitator and expect him to help them in their learning when needed.

Generally, it is believed that matching teachers' teaching styles with their students' learning styles have significant positive impact on the student's academic performance and achievements. Some research studies point out that higher achievement is observed when learning styles and teaching styles are matched Nevertheless, the findings emanating from the present study demonstrated that matching of teaching styles of the instructors with the learning styles of their students have no significant effect on the academic performance of the students. These finding may be surfaced due to the fact reasons that different instructors have adopted different instruction methods; variation in the learning styles of the learners, and their familiarization to the various and distinct learning environments and distinctive teaching methods and approaches employed by their instructors.

The finding supports the results of other studies (Wilson, 2011; Rozalina, 2013; Sabeh, 2011; Dincol, 2011, Uzuntiryaki, 2007) which produced the evidences that teaching-learning style match do not have a considerable impact on the academic success of the students. There are a number of studies in the past literature which support and confirm the results of the present study. Study conducted by Uzuntirvaki and his associates shared the similar findings. Their study found that matching the teaching styles of the teachers with their students' learning styles did not produced a significant effect on the academic achievements of the students (Uzuntiryaki, 2007). A Study conducted by Tucker (1998), who used the Canfield teaching and learning style inventories for the measurement of instructors teaching styles and their students' learning styles, concluded that matching instructors' teaching styles with their students' learning styles did not showed considerable effect on the students' academic achievements. The matching teaching-learning styles of department of Turkish Folk literature's teachers and their students' depicted no significant increase in the academic success of the students. The one possible reason for these findings may be the fact that reason behind these finding are a great variation in the learning styles of the students. They further hold that by the passage of time, students learning styles may be changed depending upon the student's age, their course subject and their learning environments.

Conclusion

The theory established in the past literature by the researchers that teaching-learning style match can enhance student academic success as measured by their exam scores and course grades and course grades (Van Vuren, 1992; Zippert, 1985; Matthews, 1995; Raines, 1976; Carthey, 1993; Miglietti, 1994, Minotti, 2005; Dasari, 2006; Romanelli et al., 2009; Kovacic, 2008; Demirel, 2004; Peacock, 2001; Tseng et al., 2008; Lovelace, 2005; Honigsfeld & Schiering, 2004; Collinson, 2000; Felder & Brent, 2005) may not be valid in all situations. The research findings of this study demonstrated that there was no significant relationship found between teaching-learning style match and student academic achievement for this specific group of participants. In this study, no significant differences were found in exam scores between students whom learning style matched with their teachers' style and those who did not. The findings found in the past literature that there exist no significant relationship between teaching-learning style match and students' academic achievements (Aragon, 2001; Desmedt & Valcke, 2003; Stahl, 1999; Tucker, 1998; Wilson, 2011; Rozalina, 2013; Sabeh, 2011; Uzuntiryaki, 2007;) was found to be true in this study. In this study, no significant differences were found in exam scores between students whom learning style matched with their teachers' style and those who did not.

The results produced appreciated information regarding practicable relationships between the degree of match about preference students' learning styles in fourth grade and teaching styles, and effect of both on students' academic achievement. Analysis of data showed that the teaching styles of the sample teachers of this present study were found as "Expert, Personal Model, Facilitator and Delegator" and Collaborative and Competitive learning styles were found. The relationship strength between learning styles and English achievement was assessed by eta squared (n²) was found to be strong. The f ratio of 1.231 was not significant at .05 levels. Students learning styles accounted for 32.9% of variance in student's English achievement levels. The evidence from the statistical results demonstrated that no significant effect exited between matching teaching-learning styles and students' achievements. Nevertheless, outcomes of this study offer vital facts concerning the field of education and have valued consequences for educationalists.

References

- Andrews. (1990). The Development of a Learning Styles Program in a Low Socioeconomic, Underachieving North Carolina Elementary School. *Journal of Reading, Writing, and Learning Disabilities International*, 6, 307-314.
- Aragon, R. Steven, Johnson, Scott, D., Shaik, & Najmuddin (2001). A Preliminary Analysis of the Influence of Learning Style Preference on Student Success in Online vs. Face-to-Face Environments. *Learning For the Future, Proceedings of The Learning Conference 2001*. Retrieved from: http://www.hre.uiuc.edu/online/comparison.pdflinda.
- Aripin, R., Mahmood, Z., Rohaizad, R., Yeop, U., & Anuar, M. (2008). Students' Learning Styles and Academic Performance. *Paper presented at 22nd Annual SAS Malaysia Forum, Kuala Lumpur Convention Center, Kuala Lumpur, Malaysia*.
- Bourhis, John., & Stubbs, J. (1991). Communication Apprehension and Learning Styles. Paper Presented at the Annual Meeting of the Central States Communication Association. April 11 14. Chicago.IL.
- Cano-Garcia, F., & Hughes, E. (2000). Learning and thinking styles: An Analysis of Their Interrelationship and Influence on Academic Achievement. *Educational Psychology*, 20(4), 413-430. doi:10.1080/01443410020016653.
- Carthey, J. H. (1993). Relationships between learning styles and academic achievement and brain hemispheric dominance and academic performance in business and accounting courses. Unpublished master's thesis, *Winona State University, Minnesota*.
- Curry, L. (1983). Learning Styles in Continuing Medical Education. Ottawa, ON: *Canadian Medical Association*.
- Collinson, E. (2000). A Survey of Elementary Students' Learning Style Preferences and Academic Success. *Contemporary Education*, 71(4), 42-48. Retrieved from EBSCOhost database.
- Dasari, P. (2006). The Influence of Matching Teaching and Learning Styles on the Achievement in Science of Grade Six Learners. *M.Ed. Dissertation, Unpublished. Bloemfontein: University of the Free State.*

- Demirel, Y. (2004). Effective Teaching and Active Learning of Engineering Courses with Workbook Strategy. In *Proceedings of the 2004 American Society for Engineering Education Annual Conference & Exposition*. Retrieved from http://www.uwe.ac.uk/bbs/trr/Issue3/Is3-1_5.htm.
- Desmedt, Ella., & Valcke, M. (2003). Learning Style Awareness: Why Would It Work? In search for a theoretical explanation for a self-evident conception. Ghent University. Retrieved August 5, 2004 from: http://allserv.rug.ac.be/~edesmedt/ Paper1ELSIN2003.doc.
- Dunn, R., Griggs. S. A., Olsen, J., & Beasley, M. (1995). A Meta-Analytical Validation of the Dunn and Dunn Model of Learning Style Preferences, *The Journal of Educational Research*, July/August 1995, Vol. 88, No. 6, pp 353-362.
- Dunn, R., Dunn, K., & Price, G. (1976). Learning Style Inventory [Price Systems, Inc.]. Retrieved from Mental Measurements Yearbook database.
- Felder, R. M., & Brent, R. (2005). Understanding Student Differences. *Journal of Engineering Education*, 94(1), 57-72. Retrieved from http://www4ncsu.edu/unity/ lockers/users /f/ felder/ public / Papers/ Understanding_Differences.pdf.
- Felder, R. M., Felder, G. N., & Dietz, E. J. (2002). The Effects of Personality on Engineering Student Performance and Attitudes. *Journal of Engineering Education*, 9(1), 3-17.
- Felder, R. M., & Spurlin, J. E. (2005). Applications, Reliability and Validity of the Index of Learning Styles. *International Journal of Engineering Education*, 21(1), 103-112.
- Felder, R. M., & Henriques, E. R., (1995). Learning and Teaching Styles in Foreign and Second Language. Foreign Language Annals, vol. 28, (1): 21-31.
- Felder, R. M. (1993). Reaching the Second Tier: Learning and Teaching Styles in College Science Education. *Journal of College Science Teaching*, 23, 286-290.
- Garcia, P., Amandi, A., Schiaffino, S., & Campo, M. (2007). Evaluating Bayesian Networks' Precision for Detecting Students' Learning Styles. *Computers & Education*, 49, 794-808.

- Grasha, A. (1984). Learning Styles: The Journey from Greenwich Observatory (1976) to the College Classroom (1984). *Improving College and University Teaching*, 22: 46-52.
- Grasha, A. F. (1994). A matter of style: The teacher as expert, formal authority, personal model, facilitator, and delegator. *College Teaching*. 42: 142-149.
- Grasha, A. F. (1996). Teaching with Style: a Practical Guide to Enhancing Learning by Understanding Teaching and Learning Styles. San Bernardino, CA: *Alliance Publishers*.
- Goodwin, D. D. (1995). Effects of Matching Student and Instructor Learning Style Preferences on Academic Achievement in English. *Unpublished doctoral dissertation, University of Arkansas*, United States of America. Dissertation Abstracts International, 57(03), 997A.
- Honigsfeld, A., & Schiering, M. (2004). Diverse Approaches to the Diversity of Learning Styles in Teacher Education. *Educational Psychology*, 24(4), 487-507. doi:10.1080/0144341042000228861
- Klavas, A. (1994). In Greensboro, North Carolina: Learning Style Program Boosts Achievement and Test Scores, *The Clearing House*, Jan-Feb, Vol. 67, No. 3, pp 143-145.
- Kovacic, Z. (2008). Learning styles and adaptive ICT based learning environment. In C. V. Slyke (Ed.), *Information communication technologies: Concepts, methodologies, tools, and applications* (pp. 413-429). Hershey: Information Science Reference.
- Kuchinskas, G. (1979). Whose Cognitive Style Makes the Difference? *Educational Leadership*, 36(4), 269-271.
- Letele, M. J., Alexander, G., and Swanepoel, Z. I. (2013), Matching/Mismatching of Teaching and Learning Styles in Rural Learning Ecologies of Lesotho: Does it Enhance Academic Achievement. *J Hum Ecol*, 41(3): 263-273 (2013).
- Lovelace, M. (2005). Meta-Analysis of Experimental Research Based on the Dunn and Dunn Model. *Journal of Educational Research*, 98(3), 176-183. Retrieved February 14, 2009, from Academic Search Complete database.

- Matthews, D. B. (1995). An investigation of the learning styles of students at selected postsecondary and secondary institutions in South Carolina. *Research Bulletin*, 60, 1-151.
- McDonald, M. (1996). The impact of Multimedia Instruction upon Student Attitude and Achievement and Relationship with Learning Styles. *Unpublished doctoral thesis, University of Nebraska-Lincoln. Dissertation Abstracts International*, 57(08), 3466.
- Miglietti, Cynthia L., & Strange, C. Carney. (1994). Learning styles, classroom environment preferences, teaching styles, and remedial course outcomes. *Community College Review*. 26(1): 1.
- Mueen, A. (1992). English Language Teaching in Pakistan. *National Book Foundation*, Islamabad, Pakistan. Pp.56.
- Mutlu, M. (2006). The Relation between the Learning Styles of the Students in Anatolian High Schools, Anatolian teachers' high schools, science high schools and their attitudes towards biology. *International Journal of Environmental and Science Education*, *I* (2), 148-162.
- Naimiea Zahra., Saedah Sirajb, Chua Yang Piawc, Reihaneh shagholid, Rana Ahmed Abuzaid, (2010). Do You Think Your Match is Made in Heaven? Teaching styles/learning styles match and mismatch revisited, *Procedia Social and Behavioral Sciences* 2 (2010) 349–353.
- O'Faithaigh, M. (2000). The Social-Interaction Learning Styles of Irish Adult Learners: Some Empirical Findings U.S. Department of Education. ERIC.
- Peacock, M. (2001). Match or Mismatch? Learning Styles and Teaching Styles in EFL. *International Journal of Applied Linguistics*, 11. ERIC Document Reproduction Service No. EJ628089.
- Raines, R. H. (1978). A comparative analysis of learning styles and teaching styles of mathematics students and instructors. Unpublished Doctoral Dissertation, *Nova University, Ft. Lauderdale*, FL.
- Razak, N. A, Ahmad, F., & Mohd Shah, P. (2007). Perceived and Preferred Teaching Styles of English for Specific Purposes Students. *Journal e-Bangi*, 2, 1-20.

- Romanelli, F., Bird, E., & Ryan, M. (2009). Learning Styles: A Review of Theory, Application, and Best Practices. *American Journal of Pharmaceutical Education*, 73(1), 1-5. Retrieved from http://search.ebscohost.com.ezproxy. liberty.edu:2048.
- Khalid, R., Mokhtar, A. A., Omar-Fauzee, M. S., (2013). The Learning Styles and Academic Achievements among Arts and Science Streams Student, *International Journal of Academic Research in Progressive Education and Development*, April 2013, Vol. 2, No. 2.
- Sabeh, Ghada, Bahous, Rima, Bacha, Nola & Nabhani, Mona, (2011), A Match or a Mismatch between Student and Teacher Learning Style Preferences, *nternational Journal of English Linguistics*, Vol. 1, No. 1; March 2011.
- Stahl, S. (1999). Different Strokes for Different Folks? A critique of learning styles. *American Educator*, 23(3), 27-31 Retrieved July 20 from: http://www.aft.org/pubsreports/ American_ educator/ fall99/DiffStrokes.pdf.
- Stitt-Gohdes, W. L., (2001). Business Education Students. Preferred Learning Styles and Their Teachers. Preferred Instructional Styles: Do They Match? *Delta Pi Epsilon Journal*, vol. 43, no. 3, pp. 137-151, 2001.
- Tseng, J. C. R., Chu, H., Hwang, G., & Tsai, C. (2008). Development of an Adaptive Learning System with Two Sources of Personalization Information. *Computers & Education*, *51*, 776-786.
- Tucker, S. Y., (1998). Teaching and Learning Styles of Community College Business Instructors and Their Students Relationship to Student Performance and Instructor evaluations. Virginia Tech. Retrieved July 18 from: http://scholar.lib.vt.edu/ theses/ delayed/ etd-32498-155442/etd-title.html.
- Uzuntiryaki, E., Bilgin, I., & Geban, O. (2003). The Effect of Learning Styles on High School Students' Achievement and Attitudes in Chemistry. Paper presented at Annual meeting of *National Association Research in Science Teaching, Philadelphia, Pennsylvania, USA*.
- Van Vuren, S. K. (1992). The effect of matching learning style and instruction with academic achievement of students receiving an interactive learning experience in chemistry. Unpublished doctoral dissertation, *Indiana State University*.

- Wilson, M. Lynne. (2012), Learning Styles, Instructional Strategies, and the Question of Matching, A Literature Review, *International Journal of Education*, 2012, Vol. 4, No. 3
- Zippert, C. P. (1985). The effectiveness of adjusting teaching strategies to assessed learning styles of adult students. Unpublished Doctoral Dissertation, *University of Alabama*.