

LINKING TEACHING STYLE AND LEARNING STYLE AS A MEASURE OF PERSON ENVIRONMENT FIT TO ASSESS STUDENT PERFORMANCE

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ABSTRACT

The current study empirically examines the congruence of teaching style and learning style as a measure of teacher student fit which is the supplementary approach to Person Environment fit among 260 management college students and 16 faculties in India. Earlier literature has stated the importance of learning style and teaching style congruence among students and also the importance of it in building effective classroom environment. The study focuses on the tool to measure this fit and its effect on student performance. Results of the study shows teaching style congruence learning style congruence is an effective predictor of Teacher Student (T-S) Fit. Subjects like Quantitative methods which has strong mathematical base had different dimensions which were significant predictors of Teacher Student Fit were different from subject like Marketing. Thus the results of the study confirmed that nature of the subject can play an important role in analyzing learning style and teaching style congruence to decipher student performance.

Key Words: Teacher student fit, learning style , teaching style, person-organization fit, student performance, effective, learning.

INTRODUCTION

With increase in competitive demands both in the business world and in the academic community, management educators now strive to provide the most productive classroom experience for their students to prepare them for careers in the business world (Quinn et al.,2014). To achieve this objective, management educators constantly search for new and improved teaching methods (Sankoff,2014). Plethora of studies have reported that matching the teaching style of the teachers with the learning style of the students is a novel approach to teaching (Bostrom, Olfman, & Sein, 1990; Kettel, Thomson, & Greer, 2000; Pashler, McDaniel, Rohrer, & Bjork, 2009). Although scholars recognize that there is no one 'right' approach they have tended to give little attention to different learning styles amongst students. Other studies of learning styles endeavor to clarify the diverse ways in which people learn (Reynolds 1997). Furthermore, Marton (1988) contend that learning styles, teaching methods and perceptions of the subject are inextricably linked. However, earlier research had not included learning style and teaching style congruence as an outcome of Person –Environment fit. Thus the purpose of the research described in this paper were to see if a link could be found between "teaching styles"and "learning styles" from the perspective of Person Environment Fit. And also to determine the effect of that link on student performance Teaching style and learning style congruence can be a measurement of supplementary approach to Person environment fit. Here the teaching style should supplement embellish the learning style of the students. However the major issue lies how to measure this fit or match between students. Thus the following study is an endeavour to measure the same using Felder–

Silverman Learning/Teaching Style Model. This study attempts to measure this fit with the help of student performance in terms of the student's grade (a measure of student of performance). These outcomes are in tandem with the consequences of P-E fit. Such studies have not yet been conducted in the Indian perspective.

LITERATURE REVIEW

Learning style (LS)

Learning style is the way or pattern with which an individual processes or retrieves information (Kolbe, 1984). Davis (1996) described learning style "as those preferential strategies that can facilitates the process of gathering, interpreting, thinking new information." Learning styles often control the ways people (learners) associate meanings to the topic being taught and enables them to make sense out of it (Reid, 1987). Learning style aids learners to develop schemas or mental modals (long-term memory structures) about the topic and easily retrieve the information as and when required (Riding, & Sadler-Smith, 1997). Thus it creates an effective enduring picture permanently. Hence being aware of one's learning style helps one to determine the effective tools and efforts required to mastering a topic or subject (Cassidy, 2004). Dodds & Fletcher (2004) found out that informing economic students of learning style appropriate their study methods. His study showed that once the students are aware of their learning style they appears to improve their exam grades and instills confidence in the choice of study methods. Similar studies have been conducted which explicates the relationships between performance and learning style (Keefe, 1991; Reid, 1987, Claxton and Murrell, 1987; Riaz and Riasati, 2007; Mulalic, Mohd Shah and Ahmad, 2009; Bidabad and Yamat, 2010; Vaseghi, Ramezani and Gholami, 2012; Vaseghi, Barjesteh, and Shakib, 2013). Within the last three decades, the proposition that students learn and study in different ways has emerged as a prominent pedagogical issue. Learning styles (Claxton & Murrell, 1987; Coffield, Moseley, Hall, & Ecclestone, 2004a, 2004b) and learning style models (Gregorc & Ward, 1977; Gregorc, 1979, 1985; Kolb, 1984; Felder & Silverman, 1988; Dunn & Dunn, 1989; Dunn, Dunn, & Price, 1982; Entwistle & Tait, 1979; Fleming, 2001; Duff, 2004) have offered descriptive typologies that describe the preferences for learning and studying.

Teaching Style (TS)

Faculty's teaching style is a mirror image of their learning style (Zahorick, 1991). The teachers are usually selective in using a plethora of teaching styles. They only resort to those teaching strategies which are in congruence with their learning style (Domino, 1971). In other words they teach the students in the fashion they have learnt a particular domain and mastered that domain. Barbe and Milone (1980) have found out that teachers are more prone to develop those teaching strategies which are in alignment of their own learning style. Thus it is a common tendency for teachers to believe that their students shall find the easiest and most convenient way in learning a particular subject the way they themselves have learnt when they were students (Felder & Silverman, 1988). Scholars of learning style models (Claxton & Murrell, 1987; Coffield et al., 2004) postulate that students learn in different ways. Taking that as a basic premise leads to the implications that faculties should not assume that all adult students learn the same way and a faculty member's own dispositions and/or preferences for learning are broad enough to accommodate the learning needs of most or all the students in the course (Boatman, Courtney and Lee, 2008). As the students have different learning styles and it is very rarely that individuals have common learning styles, so it is a responsibility of the teachers to explore their teaching style index. This would facilitate them to get exposure of different learning activities to adopt a wider field of student learning styles in order to achieve more effective learning. Hawk and Shah (2007) stated that most faculties in higher education initially adopt a teaching style that merges (1) the ways they prefer to learn and (2) approaches to teaching they saw as effective for their own learning in their higher education programs. As a result, it is likely that many faculties in higher education are either unfamiliar with their own learning style models or lack the potential to enhance the learning processes in the classroom or are not comfortable with experimenting learning styles other than their own preference because it takes them out of their own comfort zone (Grasha, 2002). The implications for the learning preference of students are significant for faculty as it facilitates likely the process of coming close to the students, to reach all of the students in a given course (Grasha & Hicks, 2000; Vaughn & Baker, 2001). Thus the conclusion is that faculty who are consciously aware of their students' learning styles as well as their own are in a position to make more informed choices in course material, design, and learning processes to broaden the opportunities for effective

learning in their courses. Since there are a variety of students with diverse learning styles it is a Herculean Task for the teacher to adopt the learning style of so many students. So the Teacher can assess the learning style of his her class and resort to the learning style of maximum number of students. This could resolve the issue to some extent (Thompson, 1998).

[Linking teaching and learning style with Person Environment Fit](#)

Person–environment (P-E) fit research embodies the assumption that attitudes, behavior, and other person-level outcomes result not from the person or the work environment separately, but rather from the relationship between the two. Numerous studies have extensively examined the implications of P-E fit for employees and organizations. (Schmidt&Hunter,1998), stress (Matteson . et al.,1984), and work performance (Tziner, 1987). Many of the outcomes of effective P-E fit would be desirable in our management classrooms: improved student attitudes, teamwork, citizenship and ethical behaviors, and most important, performance. In what is often perceived as an increasingly consumer-driven and transactional educational environment, it may be time to consider the relevance of management research in providing tools for developing a more complete understanding of student learning environments. It has been argued that higher education classrooms bear similarities to traditional organizational environments (Christensen, Garvin, & Sweet, 1991). Faculty often behave like managers in that they rate performance effectiveness (grading), control work process (pedagogy), provide necessary inputs and resources to accomplish tasks, and decide on feedback and communication methods and timing (Westerman & Vanka, 2005). Research in P-E fit has indicated that individuals have different preferences for organizational environments and processes, and the extent to which congruence between individual needs and organizational environments can be achieved results in improved outcomes. That students have differing preferences for classroom environments is reasonable to assume, and the application of P-E fit tools in assessing the extent and impact of student fit in a management education environment may be illuminating (Langbein, 2008). Lengnick- Hall and Sanders (1997) proposed a conceptual framework for the evolution of effective learning systems which includes both individual and environmental components. The authors found out that there are individual differences among students in terms of learning style “must be met by equally diverse learning process options . . . to capitalize on the range of individual differences in interests and capabilities”. The increased diversity among students facilitates the development of a better understanding of the individual- environment interaction in the learning process. This effective learning process is an urgent requirement for better student performance. For instance, Thistlewaite (1959) demonstrated that matches between the subject matter emphasized at a college and the interests of individual students resulted in higher rates of productivity and hours of study by students. However, tests of the relation between PE fit and performance based on the Holland system of interests have yielded mixed results (Holland, 1997). More targeted assessments of matching motivational orientation to learning environments have demonstrated positive results with performance in school settings (Harackiewicz, Barron, Tauer, & Elliot, 2002). These researchers demonstrated that although performance approach goals were unrelated to interest in subject matter, they were linked to better performance in terms of grades at a competitive school. That is, individuals with an achievement orientation that matched the demands of the setting tended to act in such a way that they succeeded without necessarily becoming more invested, an outcome not demanded by the environment. These previous studies have demonstrated that there may be a relationship between PE fit and the degree to which someone is satisfied and successful in the context of a job or organization. Westerman Nowicki and Plante (2002) studied the effect of three unconventional predictors of student performance and satisfaction in undergraduate classes in the management field. From the findings, the authors demonstrated the fact that personality congruence was a significant predictor of student performance and that both classroom environment congruence and values congruence were significant predictors of student satisfaction. The significance of personality similarity between an instructor and a student in predicting the student’s outcomes (grade in the class) was of particular interest, as P-O fit research in organizations tends to show a stronger pattern of results for values congruence measures (Chatman, 1989). It may be that students perceive classrooms as temporary or transient work environments and are motivated by more immediate or short-term gratifiers offered by personality- or classroom-environment fit. These findings also indicate the possibility that the various P-O fit measures may be differentially effective in improving our understanding of the relationship between individuals and their work environments based on the situation, and they may illustrate the potential for a contingency approach to fit, which has been conceptually and empirically unexamined. Westerman and

Vanka (2005) conducted similar study in the Indian and US context. They wanted to examine the difference in results in two diverse cultures. They found that value congruence was a significant predictor of student satisfaction- both for India and US. However personality congruence was a significant predictor for student satisfaction for US sample only. However Classroom Environment Fit was a measure for Student satisfaction, for both US and India. Schlee (2005) found out that Social Style (an extended form of personality) congruence of the professor and students had a positive impact on the student’s satisfaction using Merrill Reid Questionnaire. However the papers cited that measures like learning and teaching style should be included in the PE assessment. In this context, learning style of the students and teaching style of faculties could be used as measures of fit in classroom ambience.

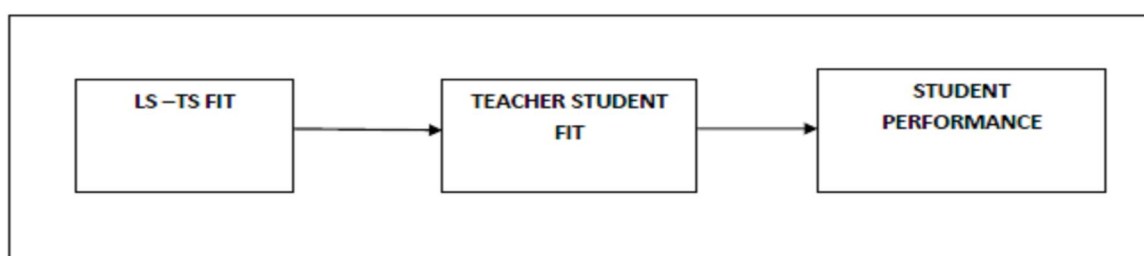
Literature review gap

The earlier studies have stated that the congruence of LS-TS leads to effective learning system. However this particular congruence can be measured as a teacher student fit in terms of supplementary approach, which is missing in the current literature. Thus this study tries to empirically test this approach in the Indian Context.

Hypothesis Development

Brown, Fry and Marshall (1999) suggest that an awareness of learning styles assists tutors in identifying teaching strategies by providing insight into the problems that students experience. Shaunessy (1998) claims that students achieved higher test scores when their tutors took account of learning style. More specifically, Onwuegbuzie and Daley (1997) and Cassidy (2004) have suggested that students' research methods performance is enhanced when teaching methods match learning styles. All students do not learn the same way. This difference in learning style among students creates a challenge for the teachers to adopt a customised teaching strategy serving the needs of all the groups. Once a teacher adopts a teaching style that matches with the learning style of student, the student can relate to the professor more and this would help him or her to have a better understanding of the topic. As a result the mental schemes he or she develops pertaining to the topic or domain remains for a longer period of time. As a result there would be an effective improvement in his performance (measured in terms of Grades). Thus where by students have a learning style matching that of the professor s teaching style are more likely to perform better in their exams. Based on the above logic , following hypothesis can be framed:

Teacher Student Fit (T-S) measured by teaching style and learning style fit is positively related to student performance.



Proposed model- Teacher Student fit

METHODOLOGY

Sample size

A student sample of 260 was taken from various management colleges across India. And a teacher sample of 16 was taken into consideration. The teachers selected were from four backgrounds-Marketing, Human Resources, Financial Management and Quantitative Techniques.

Data collection Method

Data were collected using survey by Questionnaire. (Felder Silverman Learning Style and Felder Teaching Style Questionnaire) The Questionnaires were administered to the students and the teachers respectively during normal class hours after adequate instruction and explanation provided by the researcher.

Measures Used

1. The Learning Style of the students was identified from the questionnaire using the standard method of the Silver Felderman Questionnaire. This is a 44 item Questionnaire and has the dimensions on a bidirectional scale. Each attribute takes a value of 1 to 11. For example when comparing students on the Abstract dimension with the Applied Dimension , a value of 1 would signify the abstract dimension where as a value of 11 would signify the Applied Dimension.

2. Teaching Style was also assessed based on the questionnaire administered to the professors. This is a 20 item Questionnaire and has the dimensions on a bidirectional scale. Each attribute takes a value of 1 to 11.

In both these styles, the theorists classify individuals as having preferences for one category or the other along the following four dimensions:

sensing (concrete, practical, oriented toward facts and procedures) or intuitive (conceptual, innovative, oriented toward theories and underlying meanings);

visual (prefer visual representations of presented material, such as pictures, diagrams, and flow charts) or verbal (prefer written and spoken explanations);

active (learn by trying things out, enjoy working in groups) or reflective (learn by thinking things through, prefer working alone or with one or two familiar partners);

sequential (linear thinking process, learn in incremental steps) or global (holistic thinking process, learn in large leaps).

Matching TS Fit

Once the learning style and teaching style is determined the match between the two is determined by taking the mod value of the difference between the learning and teaching style. Such methods are used at the organizational level where the PE Fit is measured. In PE Fit, the Individual Value difference from the organizational value is measured. TS fit following the same analogy can be measured. The following table provides the layout for measuring TS fit as given Feilder and Silverman (1988)

Dimensions of Learning and Teaching Styles

<i>Preferred Learning Style</i>		<i>Corresponding Teaching Style</i>	
sensory } intuitive }	perception	concrete } abstract }	content
visual } auditory }	input	visual } verbal }	presentation
inductive } deductive }	organization	inductive } deductive }	organization
active } reflective }	processing	active } passive }	student participation
sequential } global }	understanding	sequential } global }	perspective

RESULTS

The following tables give the detailed picture of the TS Fit. Table 1 show that subjects like Marketing and Human Resource Management did not give appropriate results for TS fit. Subjects like Quantitative Methods and Finance however were more significant predictors of TS Fit. In case of Quantitative Methods 72% (out of 260 sample size) gave significant results, where as in Finance it was 78% only. However for Human Resource Management (39%) and Marketing (32%), the values were not so significant. Table 2 shows that all the

dimensions of learning style were not the same for all the subjects for determining TS fit. For Quantitative Methods and Finance the learning style dimensions were very similar. Similar results followed for Marketing and Human Resource Management. Tables 3-6 gives detailed outline of all the subjects and the difference in mod values of particular dimension in measuring TS Fit. We see that the subjects like HR and Marketing gave overlapping results in terms of the mod values and the corresponding grade. However subjects like QT and Finance gave better results without any overlapping regions.

Table 1: T-S FIT For Various Subjects

SUBJECT	T-S FIT SIGNIFICANT INDICATOR
FINANCE	NOT SIGNIFICANT 32%
HUMAN RESOURCE MANGEMENT	SIGNIFICANT (39%)
MARKETING	SIGNIFICANT (72%)
QUANTITATIVE METHODS	SIGNIFICANT (78%)

Table 2: Learning Style dimensions for various Subjects

SUBJECT	SIGNIFICANT DIMENSION
FINANCE	SENSING ,VISUAL AND REFLECTIVE ,GLOBAL
HUMAN RESOURCE MANGEMENT	VISUAL,ACTIVE,INTUTIVE
MARKETING	VISUAL,ACTIVE,GLOBAL
QUANTITATIVE METHODS	SENSING ,VISUAL AND REFLECTIVE ,SEQUENTIAL

Table 3: T-S FIT For Finance

SIGNIFICANT DIMENSIONS	MOD VALUES	DEMARKATING GRADE
SENSING ,VISUAL AND REFLECTIVE ,GLOBAL	0-2,0-2,0-1,1-2	A
SENSING ,VISUAL AND REFLECTIVE ,GLOBAL	1-2,3-4,4-5,3-4	B
SENSING ,VISUAL AND REFLECTIVE ,GLOBAL	3-4,5,5-6,4-5	C
SENSING ,VISUAL AND REFLECTIVE ,GLOBAL	>6,>5,>6	D

Table 4: T-S FIT For Human Resource Management

SIGNIFICANT DIMENSIONS	MOD VALUES	DEMARKATING GRADE
VISUAL,ACTIVE,INTUTIVE	0-3,0-3,0-1	A
VISUAL,ACTIVE,INTUTIVE	2-4,3-4,2-5	B
VISUAL,ACTIVE,INTUTIVE	3-4-3-5,5-6	C
VISUAL,ACTIVE,INTUTIVE	>6,>5,>6	D

Table 5: T-S FIT For Marketing

SIGNIFICANT DIMENSIONS	MOD VALUES	DEMARKATING GRADE
VISUAL,ACTIVE,GLOBAL	0-3,0-3,0-4	A
VISUAL,ACTIVE,GLOBAL	4,3-4,2-5	B
VISUAL,ACTIVE,GLOBAL	4-5,5,6	C
VISUAL,ACTIVE,GLOBAL	>6,>5,>6	D

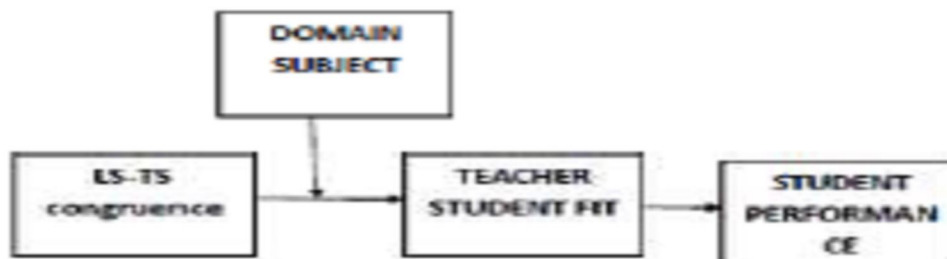
Table 6: T-S FIT For Quantitative Methods

SIGNIFICANT DIMENSIONS	MOD VALUES	DEMARKATING GRADE
SENSING ,VISUAL AND REFLECTIVE ,SEQUENTIAL	0-1,0-1,0-2,0-2	A
SENSING ,VISUAL AND REFLECTIVE ,SEQUENTIAL	1-3,2-4,2-3,2-3	B
SENSING ,VISUAL AND REFLECTIVE ,SEQUENTIAL	3-4,4-5,3-5,4-6	C
SENSING ,VISUAL AND REFLECTIVE ,SEQUENTIAL	>6,>5,>6	D

DISCUSSIONS

The results of the current study reveal certain distinct findings. Students exhibit different learning styles in different business domains. Students of marketing demonstrate more visual and active aspect where as students in Finance and Quantitative Methods exhibit more sensing and verbal domain. Another distinct learning style difference is that marketing students focuses more on global where as Quantitative Methods require more focus on the sequential dimension. The results are in sync with earlier literature which states similar findings. In fact it is proved from literature that Marketing is better understood, in terms of new concepts through visual orientations like advertisements and examples and relating the subject to practical situations (Conant, Kelley, and Smart 2003; Desai, Damewood, and James 2001; Paswan and Young 2002). Thus similar results have been found in Table2. With reference to our hypothesis which stated that learning and teaching style congruence as a powerful indicator to student performance was supported for certain subjects only like Quantitative Methods (Keefe, 1991 Reid, 1987, Claxton and Murell, 1987). Unlike marketing, subjects like Finance and Quantitative Methods which has strong mathematical base had different dimensions which were significant predictors of TS Fit were different from subject like marketing. Marketing had emphasis on Intuitive, Visual and applied. However in terms of Quantitative Methods it is more a theoretical base where in people are more prone to learning concepts in an abstract format and getting the sequential and sensing aspects as well (Ambady and Rosenthal 1993; Cahn 1987; Murray, Rushton, and Paunonen 1990; Williams and Ceci 1997). In case of difference in results between the subjects like Marketing and Human Resources on one hand Quantitative Methods and Finance in other hand could be attributed to educational background of the students, so it might be that their educational background helped them in performing better. Mostly students pursuing MBA are either from engineering background, so invariably they learn the subject better than other students. This fact further proves that learning style is determined by the subject domain. Thus the earlier tables very well suggests that the learning style and teaching style congruence is a measure of TS Fit. With the results of the current study, we propose a changed model as explained below. From the results of the study it is evident LS-TS Fit is also influenced by the subject domain. So the professors can first administer the Learning Style Instrument to the class and check which particular dimension is mostly used by the students. Once the teachers is able to assess the most preferred dimension, he or she can adopt that particular style or styles and improve the class performance. Further study can be conduct to see the effect of other intervening variables like background of the students impacting the LS-TS congruence which finally has the effect on student s performance. Moreover other measures of TS Fit like student satisfaction, change in attitudes among students can also be included in the study.

Changed Model of T-S Fit



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Dr. Srabasti CHATTERJEE has completed her PhD. in the field of Organizational Behavior and Human Resources Management from IBS Hyderabad, IFHE University. She has published research papers in journals of national and international repute and has presented papers in international conferences and has been awarded with best paper titles. Her research interests include time include Vocational psychology, Recruitment and Selection, Job Choices, Employer Branding, Strategic HRM. She has been teaching at IBS since 2010 and has taught range of subjects like Organizational Behavior, Human Resource Management, Principles of Management, Leadership and Entrepreneurship. Her teaching

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