Students' Learning Style of an Elite Professional College

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ABSTRACT

The study was conducted on a sample of students (n=277) enrolled in an elite professional institute to identify dynamics of variation in learning styles. Classroom ecology and teaching styles were regressed on the learning styles. The results indicated that students opted for deep learning style when teachers adopted student-centric approach to teaching in a challenging classroom situation. They had more choice for strategic learning style in case of teacher-centric mode of teaching followed by challenging classroom. The demand of surface learning style came to the notice when teachers adopted teacher-centric approach to teaching. A significant difference between general and SC students was noted on deep learning style. The remaining learning styles did not make any difference across category. The study discussed variation in learning styles in the light of functioning and capabilities.

सार

अध्ययन शैली में भिन्नता की गतिशीलता की पहचान करने के लिए एक कुलीन पेशेवर संस्थान में नामांकित छात्रों (n=277) के एक न्यादर्श पर अध्ययन किया गया। कक्षा परिस्थिति की और शिक्षण शैलियों की सीखने का शैलियों पर पड़ने वाले प्रभाव का अध्ययन किया है। परिणामों से यह संकेत मिलता है कि जब शिक्षकों ने एक चुनौतीपूर्ण कक्षा में शिक्षण के लिए छात्र-केंद्रित दृष्टिकोण अपनाया तो छात्रों ने गहनता से सीखने की शैली को अपनाया। इसके अतिरिक्त उनके पास रणनीतिक रूप से सीखाने की शैली के लिए और भी अधिक विकल्प थे। सतही रूप से सीखने की शैली तब सामने आई जब शिक्षकों ने शिक्षण के लिए शिक्षक केंद्रित दृष्टिकोण अपनाया। सामान्य और दलित (SC) छात्रों के बीच एक महत्वपूर्ण अंतर गहनता से सीखने

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की शैलियों में पाया गया। अन्य सीखने की शैलियों की श्रेणी में कोई अंतर नहीं पड़ा। अध्ययन में कामकाज और क्षमताओं के प्रकाश में सीखने की शैलियों में भिन्नता पर चर्चा की गई है।

Keywords: *learning style, teaching-learning, classroom ecology, teacher*

Introduction

For the last few years educationists have paid more attention to learning styles for improving performance of students in higher education. Teachers try to understand complexity of differences in learning of the students for ensuring better classroom delivery (Manikutty, Anuradha & Hansen, 2007). It has been observed that the students learn better when the contents are delivered in their preferred learning style (Entwistle, Hanley & Hounsell, 1979). Best teaching practices accommodate multiple dimensions of learning styles. An earlier study (Singh, 2017) on an elite professional college revealed that about 23 per cent students had backlog in more than three papers during 2012–16. Of them, schedule caste (SC) and schedule tribe (ST) students had more backlogs between I-IV semester. Altogether 397 students were found repeaters in regular undergraduate programmes during the same session. This was a reflection of learning process which did not match the teaching styles. It can be argued that increasing access, without increasing chances of success, is becoming a new form of social exclusion within higher education (Wilson-Strydom, 2011). Taking a lead from previous findings the study was designed to identify category-wise learning styles of students enrolled in various courses of an elite professional college. Another purpose of the study was to assess impact of classroom ecology and teaching styles on learning styles of students enrolled in the professional elite college.

Researches conducted in past on learning styles are broadly based on two popular models proposed by Kolb and Entwistle. The first model proposed by Kolb (1984) is based on the way the students construct their ideas (whether through concrete experience or abstract conceptualisation) and the manner in which they process these ideas further (through active experimentation or reflective observation). These two dimensions, though independent of each other, generate four learning styles: (a) convergence, (b) divergence, (c) assimilation, and (d) accommodation. The major problem is that experiential learning is not the only way students learn; other ways such as information assimilation and

memorisation exist and are very important, especially in classroom situations (Jarvis, 1987). The second stream of research on learning style (Entwistle, Hanley & Hounsell, 1979; Entwistle & Tait, 1995; Entwistle, Tait, & McCunne,2000) revolves around the idea that learning environment and teaching-learning processes (TLP) determine the modes of learning. Researchers in this stream concentrate on the cultural factors of learning (Hofstede, 2002). Entwistle and Wilson(1970) identified two kinds of motivation for learning: achievement orientation and fear of failure. Entwistle, Hanley and Hounsell (1979) explain three categories of learning: deep, surface apathetic and strategic. Deep learning entails an interest in new ideas and a willingness to explore them in-depth. It involves a combination of reflective as well as active learning. The surface apathetic approach is characterised by learners tending to focus on memorisation, being extrinsically motivated by the fear of failure and focus strictly on the task at hand. The learners tend to be bound to the syllabus and typically gain only a shallow understanding of the subject. Strategic learners aim to obtain the highest possible grades or other rewards, serving their own set of objectives. They identify assessment criteria for courses and then adopt the appropriate study methods.

The educational reforms in higher education have, to a great extent, ignored the cultural forces affecting learning styles and teaching practices. A plethora of studies have been conducted to identify intercultural differences in learning styles (Hofstede & Hofstede, 2005). The Chinese and Japanese teachers have relatively lower teaching load than the Western teachers enabling them to have more time with students outside the class. The Chinese students are generally quiet in class and are taught not to question or challenge their teachers. Asian learners use the rote-learning strategy because of their practice of memorisation which did not enhance understanding (Wong, 2004). Taiwanese learners give priority to reproduction of written work and factual knowledge with little or no emphasis on critical thinking. The Australian education system encourages students to be critical thinkers, often giving them opportunities to generate questions in their mind. Wong (2004) in a comparative study reported that Indian as well as Chinese students were more reflective learners. In a collectivist culture, teachers transfer knowledge to their students, whereas in an individualist culture students are expected to be active participants in knowledge acquisition through discussions

and inquiry (Staub & Stern, 2002). However, there has been a debate on the issue that collectivist students are passive learners and teachers primarily transmit knowledge to their students. A teacher in an individualistic culture encourages students to become independent, focuses on individual needs, promotes them to express their opinion freely and asks them to be assertive. Teachers showed high degree of uncertainty avoidance by making learning more pragmatic and applicable to the global context (Hofstede, 2001).

In student-centered pedagogy collaborative learning is generally practiced to encourage students from different backgrounds (Hofstede & Hofstede, 2005). The degree, to which students showed their engagement with issues and applied their understanding to the surroundings, gets influenced by the level of classroom debate and discussion. Some teachers avoided discussing contents during teaching and, thereby, limiting students' opportunities to engage academically with the issues. Teachers defined parameters for participation in their classroom proceedings (Clark, 2003). Teachers kept asking questions as if they were authority and had command over all valid knowledge. Thus, a limited inclusion of students in classroom transaction was noted; though appropriate students' knowledge as an integral part of instruction was missing (Singh,2017a).Getting a cue from previous studies on cross-cultural variation in learning styles and teaching styles the study focused on Enwistle' approach to learning style.

Objectives

The main objective of the study was to examine dynamics of variation in learning styles due to classroom ecology and teaching styles in an elite professional institute.

Hypotheses

A set of hypotheses were framed.

Hypothesis1: In a challenging learning environment teacher-centric instructional teaching will lead to both the strategic as well as surface learning.

In India students try to secure the highest possible grades or ranks that help get a lucrative job. This is possible when they organise their studies in temporal frame and select appropriate methods of preparation.

Hypothesis 2: Student-centric instructional teaching will promote deep learning, if learning environment is more challenging.

Teaching-learning processes in prestigious colleges make learning more pragmatic and applicable to the global context. In societies with a high degree of uncertainty avoidance, students were comfortable only with precise objectives, structured learning, detailed assignments, strict time tables and an unambiguous assessment (Hofstede, 2002). It promotes strategic as well as deep learning styles.

Hypothesis 3: There will be category wise variation in learning styles.

The SC/ST students may increase access to the prestigious colleges. It does not mean that they ensure success to the academic programme leading to a disguised form of social exclusion (Sen, 1999). A functioning is an achievement [outcome], whereas a capability is the ability to achieve potential. Capabilities are related to functioning (achievement). Deep learners improve their capabilities whereas, surface learners opt for functioning. They differ in their approach to learning. The distinction between capabilities and functioning is critical, because outcomes/achievements do not necessarily provide sufficient information to understand how well someone is really doing in terms of their personal wellbeing (Nussbaum, 2011; Sen, 1995).

Method

Sample

Out of 1173 students enrolled, a total of 277 students belonging to different categories (General=121, OBC=78, SC=42, ST=36) from a prestigious professional institute from 19 academic departments/ centres across semesters were proportionately selected for the study in the year 2017. The sample, selected randomly, comprised of about 23 per cent of the enrolled students either in B. Tech (Hons.) or both B. Tech and M. Tech dual degree programmes. Students of 1st semester were not included in the study because they were least exposed to the campus activities.

Tools Used

The study followed Entwistle's model of learning styles. The investigator developed all three scales based on contextual requirements. Since the scales were presumed multidimensional,

factor analysis of each scale was separately computed by the principal axes method followed by non-oblique method to get orthogonal factor. Factors were extracted till Eigen value was more than one. It was noted that some items had significant loading on more than one factor. They were closely scrutinised and were retained on those factors where either they had highest loading or to which they seemed to belong in terms of the meaning. All measures were 4-point scale.

Learning Style Scale (LSS)

A set of 22 items of the scale (Singh, 2017a) generated three factors-deep learning, strategic learning and surface learning accounting for 73.66 per cent of the total variances. The Eigenvalues of these factors were 3.94, 3.47 and 3.16. The alpha coefficient computed for each factor was 0.79, 0.68 and 0.65 respectively. Some items were: factor I(deep learning): I am able to explain things which I learn (0.75), factor II(strategic learning): I distribute my study hours to all papers (0.73) and factor III(surface learning): I study because I have to pass the exam(.66).

Teaching Style Scale (TLS)

This scale having 22 items resulted in two interpretable factors-teacher-centric and student-centric accounting for 66.42 per cent of the total variances (Singh, 2017a). The Eigen values of the both factors were 4.88 and 4.07 respectively. The alpha coefficients of the factors were 0.77 and 0.66. A few items with loading were: Factor I(teacher-centric process)-teachers never go beyond the prescribed syllabus (0.76) and Factor II(student-centric process)-they work out our problems even in the leisure period (0.65).

Classroom Ecology Scale (CES)

The scale having 24items gave rise to two orthogonal factors-challenging and encouraging explaining 71.86 per cent of the total variances (Singh, 2017a). The Eigen values of the both factors were 4.27 and 3.77 respectively. The alpha coefficients computed for both factors were 0.76 and 0.69. A few items were: Factor I (challenging)-teachers incorporate activities for students to apply new knowledge (0.72)and Factor II(encouraging)-teachers encourage all students to express their thought (0.69). The loadings and other details of all factors of each scale are reported in the Table 2.

Data Collection

The investigator conveniently approached students and gathered data with the help of a set of scale. Teachers also provided sufficient information about the teaching-learning practices and classroom environment. This helped substantiate the results.

Results

Students across category were found to have more choice of strategic learning style followed by deep learning style (Table 1). On the other side, SC students opted for surface learning (mean= 3.12) as compared to general category (mean=2.87). ST students (mean=3.03) had an edge over SC students (mean=2.96) while opting for strategic learning style. Both groups had less choice for deep learning. OBC students consistently followed all three styles with least variation. An overall significant difference on deep learning style among groups was noted ($p< 0.05$). More specifically, the general and SC category students differed on deep learning style ($p< 0.01$). On the other side, no differences were recorded on strategic and surface learning styles among students across category ($p> 0.05$). Hence, hypothesis 3 got partially supported.

Table 1

Difference between Learning Styles among Category

Category	Learning style		
	Deep Learning	**Strategic Learning**	**Surface Learning**
Gen (131)	3.19**(0.76)	3.28 (0.95)	2.87 (0.77)
OBC (68)	3.07 (0.93)	3.12 (0.97)	3.07 (0.76)
SC (42)	2.73**(0.86)	2.96 (0.79)	3.12 (1.02)
ST (36)	2.81(1.02)	3.03 (0.84)	2.98 (1.03)
F-value (3,274)	4.19* p <0.01	2.01 p > 0.05	1.98 p > 0.05

Note: Mean values of learning style are reported. Figure in parenthesis against category and learning style indicates number of respondents and SD respectively; response measured on 4 point scale. Newman-keuls test was computed to assess difference between groups.

Manikutty, Anuradha and Hansen (2007) identified a pattern of deep, surface and strategic learning behaviour in the light of cultural context. Deep learners exploited learning opportunities in

many ways. Strategic learners had very specific goals. They had a well-planned time distribution for their study and accordingly, had an advance preparation for regular assessment. Probably, it was one of the reasons for a choice of strategic learning. Surface learners adopted shortcut way of success and hence could not cope with academic stress. All three learning styles in various combinations were functional among students, depending upon their liking or disliking the subjects for which they had shown their interest.

An analysis of teaching style suggested that teacher-centric style (proportional mean=3.38) was more prominent in the institute. It did not mean that teachers were not employing student-centric process (proportional mean=3.18). They tried to get SC/ST students involved in learning processes. The study revealed that teachers worked out their problems even out of the class, if required. They monitored the lab work during the off-period and encouraged them to explore some alternative solutions (student-centric). Remarkably, students who had frequent interaction with their teachers, took advantages of this situation. Such students did not hesitate to go to their teachers' residence for asking questions.

Table 2

Mean, SD and Proportional Mean with Rank of All Factors

Dimension	Range of mean scores	Range of loading on items	Range of SD	Proportional mean	Rank
Teacher-centric (10)	3.34–3.42	0.51–0.78	0.68–1.04	3.38	1
Learner-centric (12)	3.15–3.35	0.53–0.74	0.66–1.07	3.18	2
Challenging (14)	3.18–3.58	0.52–0.77	0.55–1.07	3.19	1
Encouraging (10)	3.08–3.33	0.58–0.71	0.57–0.96	3.16	2
Deep learning (7)	3.29–3.47	0.65–0.77	0.72–1.14	3.28	1
Strategic learning (8)	2.72–3.17	0.59–0.75	0.64–0.98	2.86	2
Surface learning (7)	2.66–3.05	0.56–0.68	0.58–1.06	2.82	3

Note: Figures in parenthesis against dimension show number of items.

An attempt was made to capture classroom ecology as perceived by students. Two main trends were noted in the study-challenging and encouraging. The challenging classroom ecology (proportional mean=3.19) was more prominent in the institute which included

many teaching practices such as setting high expectations for students' performance, incorporating activities for students to apply new knowledge, providing opportunities for independent or group learning in the classroom, allowing all students to discover key ideas individually, employing brainstorming techniques in some cases, asking questions for drawing inferences from data, providing opportunities for all to conceptualise learning experiences, etc. Another prominent feature of the classroom ecology was known as encouragement (proportional mean=3.16). Teachers continued encouraging all to judge variation in learning situations, promoting all in the exploration of diverse points of view to reframe ideas, motivating all students for multiple interpretations of some problems, encouraging all to reflect on the concept thrown by the teachers, motivating all to gather multiple sources of data for solving some problem, throwing a challenge to all students in solution-finding activities, etc.

Regression Analysis of Learning Style: Altogether three predictors namely, student-centric process followed by challenging classroom ecology and relationship with roommate significantly contributed to deep learning style. An overall F (7,270) was found significant 3.64, $p < 0.01$. The coefficient of multiple Rwas 0.67 suggesting 44 per cent of the total variance on deep learning style was accounted for by the predictors in question. The pattern of results revealed that student-centric process emerged as prominent predictor explaining deep learning style, F(1,270) 4.67, $p < 0.01$. Challenging classroom ecology was another predictor that significantly determined deep learning, F (1,270) 4.59, $p < 0.01$. Relationship with roommate had a significant effect on deep learning, meaning that they discussed many issues with their roommate F (1,270) 5.78, $p < 0.01$. The result confirmed Hypothesis 2. Strategic learning style had two predictors-challenging classroom ecology and teacher-centric process. Challenging classroom ecology generated disequilibrium in students, leading to strategic learning, F (1,270) 3.96, $p < 0.05$. Teachers always set high expectation for students' performance. At the same time, they gave priority to high performers and were found selective while setting a challenge to the entire class, F (1,270), 4.11, $p < 0.01$. It substantiated Hypothesis 1. Surface learning was a result of teacher-centric process and relationship with roommate. An overall F (7,270) 3.28, $p < 0.01$ was significant. Surface learners experienced academic stress during teacher-centric learning. Even

relationship with the roommate was not very congenial (beta –0.22) which deprived them of getting academic support from their room partner F (1,260) 3.98, p <0.01.

Discussion

The study identified learning styles and its predictors of a prestigious professional institute. Students enrolled in various programmes were by and large, strategic learners. They had expectation of getting lucrative jobs after good performance. An overall difference on learning styles among category was insignificant. The study noted significant difference between general and SC category on deep learning, showing more practices of deep learning by general category students. The study observed more teacher-centric instructional methods in the institute. Other than engagement of remedial or tutorial classes for poor performers, teachers hardly paid attention to them. There existed challenging classroom ecology promoting healthy competition among students. This accounted for strategic learning as well deep learning. But not all students had a desire for deep learning. In case of challenging classroom ecology they had to face many difficulties and hence, opted for surface learning. It was also true that all students had no equal learning capacities. These students under teacher-centric approach to learning adopted shortcut way of success. Whether learning style is a state-of-art or trait? This issue has generated a debate on learning behaviour. Cassidy (2004) argues that learning style is a stable characteristic of learners that exists in a form over time. It is a state-of-art changing with learning experience or learning situation. Curry (1991) suggests an 'Onion model' to explain learning behaviour. A learner has three layers of learning preferences-instructional, social and informational. Instructional layer deals with preferences of learning environment while social interaction allows a learner to learn from social interaction. Informational processing is an academic exercise a learner adopts. Witkin and Good enough (1981) explains learning styles in terms of field independence and field dependence approach to learning behaviour. Field independent learners are characterised as operating with an internal frame of references, intrinsically motivated with self-directed goals, structuring their own learning and defining their own study strategies. Field dependent learners, on the other hand, are characterised as relying more on external frame of reference, are extrinsically motivated and have a need for

structuring and guidance from the instructor. Asian learners are more field-dependent (Hofstede, 2002).

On deep learning styles there existed a significant difference between general and SC category students because of competence level. At the time of entry SC students got admitted to the institute because of reservation policy. But the learning environment was equally challenging to all. As a result they could not cope with the learning environment. Nor they were comfortable to the classroom teaching. They stayed away from the classroom for many reasons. The choice of strategic learning was common to all. They had a plan how to perform well in the exam. Least choice of deep learning and not coping with the challenging academic environment by the SC students could be attributed to functioning and capabilities approach to exclusion in educational programme (Nussbaum, 2011; Sen, 1999). Functioning refers to outcomes that a person values or has reason to value. Capabilities are the freedom a person has to enjoy valuable functioning. A functioning is an achievement (outcome), whereas a capability is the ability to achieve (Sen, 1985; Walker & Unterhalter, 2007). Functioning without capabilities restricts entitlement (freedom of choice) and hence, does not provide sufficient information to understand how well someone is really performing (Wilson-Strydom, 2011).

Conclusion

Access to higher education does not necessarily guarantee equity and thereby social justice, to those who have been denied it for centuries since the history of prejudice has reproduced newer forms of inequalities (Deshpande & Zacharias, 2013; Sen, 1999). It is true that the meritorious students had exercised a monopoly on all means of upward mobility, thereby restricting the same for the less meritorious. Merit has always been conjoined with the elite and the privileged and has been exercised as a filtering device to produce and reproduce discrimination. Hence, the meritorious leave room for the persistence of discrimination without assuming social responsibility for its elimination. The introduction of entrance examination has reproduced disparities in the elite institutions, not only by justifying, also socially legitimising merit. However, it is well-known fact that social conditions and the nature of schooling determine the scores in entrance examinations, and subsequently, the entry of candidates in higher education. Since the underprivileged come from under performing state-funded schools,

it is not surprising that they can hardly compete for admission. The reserved category students were neither familiar with the educational institutions nor were prepared for participating in these new settings. This resulted in high dropout in the form of social exclusion (Desh Pande & Zacharias, 2013). The elite institutions uphold excellence through entrance exam. This position could serve to eliminate those who had entered the institutions through either coaching or reservation policy. Dalit students felt alienated by an unfamiliar pedagogy, ragging and other discriminatory practices in the everyday life of a university campus.

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