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Learning Experiences of Higher Education Students: Approaches to Learning as Measures of Quality of Learning Outcomes

Shazia Qureshi* Raza Ullah **

Abstract

Learning environment is a vast area and varies from time to time and place to place. In the broader spectrum, a learning environment may be teacher-centered or student-centered. The teacher-centered learning environment lacks active participation of students in the teaching learning process, and lecturing is a predominant mode of instruction. Here, there is considerably less interaction among students as well as between teacher and students. In this approach, a teacher acts as a transmitter of knowledge rather than a facilitator of learning. Student-centered learning environment, on the other hand, is characterized by active participation of students in the teaching learning process. This paper is an attempt to examine the relationship between students' perceptions of learning environment, their approaches to learning and the quality of learning outcomes. The paper is mainly based on secondary sources of information and the review of the literature shows the intimate relationship between perceptions and approaches. The findings of this research show that quality of the students' learning is determined by their approaches to learning; the deep approach leads to better quality learning, and the surface approach to poor quality learning outcomes

Keywords: Students' Perceptions of Learning Environment, Higher Education, Approaches to learning, Quality of learning.

* PhD, University Law College, Punjab University Lahore
** PhD ISCS, Punjab University Lahore

Background and the Focus of the Study

What is a learn environment and what are its main components? In fact, learning environment is a very broad field which consists of a number of components, e.g., curriculum, teaching, assessment, student-student and student-faculty relationships. The learning environments may be meaning oriented which emphasizes on 'understanding', or reproduction oriented which focuses on reproduction. Needless to say that different aspects of the same learning environment may have different impact on students' approaches to learning. For instance, teaching practices may encourage conceptual understanding while assessment may reward rote memorization. Teachers and students may perceive the same learning environment differently. Further to say that educators might have designed a learning environment to promote desirable approaches to learning but the students might have different perceptions of it. In this perspective, the main objectives of this study are:

(i) To examine the relationship between students' approaches to learning and quality of the learning outcomes.

(ii) To examine the relationship between the students' perceptions of different dimensions of the learning environment and their approaches to learning.

Research on student learning has identified different approaches to learning. Marton and Säljö (1976) identified surface and deep approaches to studying among the university students. They called them surface-level and deep-level processing, respectively. The deep-level processing was characterized by an intention to understand the subject matter, and the surface-level processing, on the other hand, is characterized by an intention to memorize the text. Those who use the deep approach, try to integrate new knowledge with their previous knowledge and experience. They also reflect on what they read and try to apply the new knowledge to the real life issues. Whereas, those who use surface approach, try to memorize the text for the examination without efforts to understand it. Ramsden (1979) identified a strategic approach which is characterized by an intention to obtain the highest marks. Richardson (1994) found that the students of higher education used different approaches in different cultures but the deep and the surface approaches seemed to be found in all systems of higher education. The deep and the surface approaches show stability across different populations and countries (Ramsden, 1992).

How this Study is Conducted?

The study involves review of the scientific literature on relationship between students' approaches to learning and quality of the learning outcomes. It also involves review of the literature on the students' approaches to learning and their perceptions of the learning environment. A particular attempt was made to analyze the literature on research into student learning, that have been carried out in different educational contexts. The analysis encompasses the scientific literature from 1976 to date. The authors also reviewed Marton and Saljo's (1976) work who in an experiment asked university students to read the passages of prose, and in order to explore their process of learning, they subsequently asked them questions with regard to the respective passages.

Approaches to Learning and the Quality of Learning

Biggs (1979) argues that each study process is a combination of motivation and strategy. According to him, student learning involves input, process and output; input involves different aspects of the learning environment, process is the way students go about the learning and output is the outcome in terms of quantity and quality. There is a qualitative difference between different approaches to studying (Gibbs, Morgan and Taylor, 1982; Trigwell and Prosser, 1991). Willis (1993) argues that approaches to studying involve both process and product of learning, therefore, what a student has learnt cannot be known without taking into account how he or she learnt it. The results of some other studies also show that quality of learning outcomes is determined by the approaches to learning (Biggs, 1979; Marton and Säljö, 1976; Trigwell and Prosser, 1991). The surface approach leads to the poor quality learning outcomes, and the deep approach to better quality learning outcomes (Ramsden, 1992).

Trigwell and Prosser (1991) reported the results of two studies, carried out to investigate the relationship between the students' evaluation of the learning environment, approaches to study and learning outcomes. The first study was conducted with 143 first year nursing students. A questionnaire based on the Approaches to Studying Inventory (ASI) and the Student Evaluation of Teaching and Course Questionnaire were used to measure the approaches to study and the students' evaluation of the learning environment, respectively. Here, the qualitative learning outcomes were measured by SOLO taxonomy (Biggs and Collis, 1982). They found that students' approaches were associated with their perceptions of the learning environment. Moreover, the deep and relating ideas approaches were associated with the quality of learning outcomes.

The second study by Trigwell and Prosser (1991) was conducted with the third year nursing students. The modified version of the ASI and the Course Experience Questionnaire (CEQ; Ramsden, 1991) along with the measure of qualitative learning outcomes, were administered to the students. According to the results, Perceptions of inappropriate assessment and heavy workload were associated with the surface approach to study. On the other hand, perceptions of clear goals and independence in learning and good teaching were associated with the deep approach. Overall, the students' perceptions of the learning environment were associated with approaches to study; there was also evidence of associations between perceptions, approaches and quality of learning outcomes. In both studies, better quality learning outcomes were associated with the deep approaches to study.

Another research conducted by Zhang and Watkins (2001), investigated the relationship between students' approaches to study and their cognitive development. The Study Process Questionnaire (SPQ; Biggs, 1987) and Zhang Cognitive Development Inventory (ZCDI) were administered to the US and Chinese students. Both the instruments (SPQ and the ZCDI) were based on self reports with regard to approaches to study and cognitive development. They found that the students who used the deep approach, tended to report committed way of thinking, whereas, the students who used the surface approach, tended to report a dualistic way of thinking. In other words, students' approaches to study were associated with their reported intellectual development.

Biggs (1999) argues that deep approach involves the most appropriate cognitive activities, and the students who use this approach, try to focus on underlying meaning, themes, main ideas, principles and applications. On the other hand, the surface approach involves low cognitive level activities with an intention to complete the task with minimum effort. Similarly, Hazel, Prosser and Trigwell (2002) found that the deep learners had better understanding of the topic of study than the surface learners.

Case and Gunstone (2002) investigated the effect of course environment on students' approaches and metaconitive development. This qualitative study was carried out with the second year students who were taking a course in the chemical engineering program in the University of Cape Town. The course was restructured to promote deep approaches to learning. The restructuring involved, mainly, reduction in the course content, active student participation in the learning process, active discussions and interaction between the students and changes in the assessment methods. The students who used the conceptual approach found the teaching and assessment to be supportive of conceptual learning. Unlimited time test seemed to

encourage students to shift from algorithmic to conceptual approach. They found the overall workload and time pressure in assessment to be detrimental to the promotion of conceptual approaches and metaconitive development. They concluded that the changes that were made to the course proved effective in promoting the conceptual approach to learning.

Perceptions of the Learning Environment and Approaches to Learning

Laurillard (1979) found that approaches to studying were not inherent in the students but were context-dependent. Students respond to the demands of the learning context (Ramsden, 1979). The same student may use different approaches in different academic contexts depending upon the demands of the context (Eley, 1992; Ramsden, 1992), and different students may perceive the same learning environment differently (Eley, 1992; Hazel, Prosser and Trigwell, 2002). Biggs (1999) argues that approaches to study and learning outcomes are influenced by individual and environmental factors. Students' approaches to study are influenced by the context, content and the demands of the learning tasks (Richardson, 2000).

Ramsden (1979) used a questionnaire and interviews to investigate the effect of academic context on the students' approaches to study. The study was conducted with the second-year students from six departments in a British University. He found that the students at different departments had different perceptions of their academic environments (evidenced by the analyses of both questionnaire and interview data) and used different approaches corresponding to the perceived demands of the departments. Similarly, Watkins (1982) used both quantitative and qualitative data to investigate the effect of personal and contextual factors on the students' approaches to study. The students at different departments had different perceptions of their academic environment. The deep approach was associated with the students' perceptions of good teaching, choice of ways to learn, openness to the views of students, and the surface approach, on the other hand, was associated with the perceptions of poor teaching, heavy workload and lack of openness to the students' views. Winter (1981) conducted a literature review and concluded that the learning environments varied with regard to student-faculty relationships, teachers' interest in students' learning and teaching, that in turn affected students' satisfaction and achievement. To investigate the effect of course delivery on teaching and learning in postgraduate courses, Beattie and James (1997) conducted semi-structured interviews with teachers and students at Australian universities. They concluded that course delivery methods need to be flexible to suit to needs and preferences of the students for effective learning. They maintained that learning environment should encourage self reflection and high level of teacher-student and student-student interaction.

A number of studies used questionnaires to collect quantitative data on students' perceptions and approaches with the aim to examine the relationship between perceptions and approaches. These instruments are originally based on concepts that were identified in qualitative research on student learning. The questionnaires measured the learning environment by using students' perceptions of the learning environment, and approaches to studying were measured by students' self reports of their learning behavior. These quantitative studies provided evidence of relationship between approaches and perceptions of the learning environment (Entwistle and Ramsden, 1983; Entwistle and Tait, 1990; Parsons, 1988; Ramsden, 1983; Ramsden, 1991; Ramsden and Entwitsle, 1981; Wilson, Lizzio and Ramsden, 1997). However, strength of associations between the students' perceptions and their approaches varied from study to study. The earlier quantitative studies (Entwistle and Ramsden, 1983; Entwistle and Tait, 1990; Parsons, 1988; Ramsden and Entwisle, 1981) found fewer links between the students' perceptions of their courses and their approaches to study.

Entwistle, Hanley and Hounsell (1979) developed Approaches to Studying Inventory (ASI) in UK. Ramsden and Entwistle (1981) administered the ASI and Course Perception Questionnaire (CPQ; Entwistle and Ramsden, 1983) to 2208 students from six disciplines and 66 departments at British universities and polytechnics. The ASI consisted of 64 items in 16 subscales relating to four major orientations to study: reproducing orientation, meaning orientation, achievement orientation and nonacademic orientation. Factor analysis identified the four approaches to study. The students' perceptions were associated with their approaches to studying. However, there were fewer and weak associations between perceptions and approaches. Perceptions of heavy workload were associated with reproducing orientation, perceptions of good teaching and freedom in learning were associated with meaning orientation, and perceptions of clear goals and standard were associated with achieving orientation. Subsequently, Ramsden (1983) found that the students at the polytechnics perceived the teaching more favorably than the students at universities, and were also more likely than the university students to use the deep approach to study. He also found that the faculty or discipline of study had the strongest influence on the students' approaches. Vermunt (2005) also found the academic discipline to be strongest predictor of the students' learning patterns.

Parsons (1988) carried out a study with English speaking and Afrikaans-speaking students at the Cape Technikon to replicate the findings of Ramsden and Entwistle (1981) and Entwistle and Ramsden (1983). The ASI and the 40-item Course Perception Questionnaire (CPQ) were used to collect the data. The deep and the surface orientations were identified in both the samples. He also found fewer associations between students' perceptions of the learning environment and their approaches to studying. Moreover, the Afrikaans speaking students tended to use the surface approach more than the English speaking students. Entwistle and Tait (1990) found that perceptions of relevant content were associated with the deep approach and perceptions of irrelevant content with non-academic approach. The surface approach was associated with the perceptions of heavy workload.

Some researchers thought that weaker association found between perceptions and approaches, in earlier studies, might be due weaknesses in the instruments used in these studies to measure these concepts. Ramsden (1991) developed the Course Experience Questionnaire (CEQ), based on its predecessor, the CPQ (Ramsden and Entwistle, 1981). In its national trial, Ramsden (1991) found associations between students' perceptions of different aspects of the learning environment and their approaches to studying. Especially, heavy workload and inappropriate assessment were associated with reproductive approach, and good teaching and clear goals were associated with the deep approach. Association between heavy workload and surface approach was in line with previous studies (Entwisle and Ramsden, 1983; Entwisle and Tait, 1990).

An analysis of literature shows that positive perceptions of learning environment are associated with the desirable approaches and negative perceptions are associated with the less desirable approaches to study (Eley, 1992; Entwistle and Ramsden, 1983; Entwistle and Tait, 1990; Parsons, 1988; Ramsden, 1991; Ramsden and Entwistle, 1981; Wilson, Lizzio and Ramsden, 1997). Pimparyan, Roff, Macaleer, Poonchai and Pemba (2000) studied the approaches and perceptions of student nurses at a Thai Nursing College. They used the Medical Education Environment Measure (MEEM) and 32-item Approaches to Studying Questionnaire (Richardson, 1990) to collect the survey data from the students. The students produced higher scores on reproducing orientation than meaning orientation. They argued that the course emphasized the memorization of basic concepts for the purpose of examination. They found that the students tended to use the surface approach more in the first two years than the final two years. They argued that entry test might have encouraged rote learning and the students continued this approach till the middle of the course. The students' approaches to study were associated with their

perceptions of the learning environment. They concluded that the students who perceived the learning environment positively, tended to use desirable approaches to study, and those who perceived the learning environment negatively were likely to use less desirable approaches to study.

To examine the effect of prior academic ability and perceptions on approaches to studying, Hazel, Prosser and Trigwell (2002) carried out a study with the first-year biology students, at two Australian universities. They modified the CEQ (Ramsden, 1991) and the SPQ so that the items referred to the topic of study (photosynthesis). They also measured the students' prior and post understanding of the topic. They found that the students who used the deep approaches and the students who used the surface approaches had similar prior understanding but had different perceptions of the same learning environment. Delva, Kirby, Knapper and Birthwistle (2002) conducted a postal survey of physicians and found that their perceptions of workplace climate influenced their approaches to learning at the workplace. The perceptions of inappropriate workload were associated with the surface approach and the perceptions of supportive climate and choice-independence were associated with the deep approach.

In a qualitative study with accounting students, Lucas (2001) found that different students perceived the same course differently. The students who used the deep approach, found the material (course) relevant to their life (career, business, higher education). Assessment was found to be an important factor that influenced approaches to learning. Similar results were also obtained by Mayya and Roff (2004) who conducted a survey of medical students at a medical college in India to explore the students' perceptions of the learning. They found that the academic achievers had more positive perceptions of the academic environment than the academic under-achievers. The perceptions of the learning environment were associated with the outcomes, attitudes and approaches to learning. In another study, Mayya, Rao and Ramanarayan (2004) analysed the approaches to learning of undergraduate physiotherapists in India. It was found that heavy workload and academic and non-academic problems lead to anxiety, lack of confidence, fear of failure and poor approaches to study. On the other hand, interest in the subject and vocational relevance motivated the students to use the deep approach to study.

Lizzio, Wilson and Simons (2002) investigated the relationships between presage variables (gender and prior academic ability; perceptions of the learning environment), process variables (approaches to study) and product variables (satisfaction, academic achievement and acquisition of generic skills). They carried

out path and regression analyses on responses of a large multidisciplinary sample of undergraduate students from three disciplines (humanities, science and commerce) in a university. They used the CEQ (Ramsden, 1991; Wilson, Lizzio and Ramsden, 1997) to measure students' perceptions of the learning environment and constructed two scales (deep and surface approaches) by using items from the ASI (Entwistle, Hanley and Hounsell, 1979) to measure approaches to learning. They found that the students' prior academic ability had no association with their perceptions of academic environment. Prior academic ability had no association with the deep approach and weak positive association with the surface approach. Positive perceptions of the learning environment were associated with deep approaches and the negative perceptions with the surface approaches across disciplines and years of study. Good teaching and appropriate assessment were found to be the strongest predictors of the deep approach.

According to a study carried out by Case and Gunstone (2003), students considered the conceptual approach to be a time consuming activity and the students who used the non-conceptual approach seemed to avoid time consuming activities. Although, all the students (i.e., those who used conceptual approach and those who used non-conceptual approach) perceived the learning environment to be time pressured, yet the students who used the non-conceptual approach to learning seemed to be unable to cope with pressure of time. They concluded that time pressured learning environments might be detrimental to desirable approaches to study.

In a study by Kreber (2003) conducted with higher education students from seven groups of disciplines at different universities in Canada. A section of Approaches and Study Skills Inventory for Students (ASSIST; Entwistle, Tait and McCune, 2000) and the CEQ (Ramsden, 1991) along with 11 items (related to independence within the discipline) were administered to the students. The CEQ used in this study consisted of 25 items and the items were slightly reworded to make them suitable for the course. The generic skills were found to be the significant predictor of all the approaches to study and the main predictor of the deep and the strategic approaches. Heavy workload was the strongest predictor of the surface approach. Overall, the study confirmed the relationship between the perceptions and approaches to study.

Abraham (2006) modified the items in both the 30-item CEQ (Ramsden, 1991) and the SPQ (Biggs, 1987) to refer to a subject in the course, and collected data from the students. Positive perceptions of the learning environment were associated with the desirable approaches to study. To investigate the relationship between

perceptions and approaches Richardson, Gamborg and Hammerberg (2005) surveyed the students of occupational therapy at seven different institutions in Denmark. The students' perceptions of their courses were associated with their approaches to study. The negative association between perceptions of the courses and undesirable approaches was stronger than the positive association between perceptions of courses and desirable approaches to study. It reflects that the positive perceptions of the courses were more likely discourage the less desirable approaches than to encourage the desirable approaches to study. Similarly, Sadlo and Richardson, (2003) found that positive perceptions of the courses were associated with desirable approaches and negatively associated with less appropriate approaches to study. The findings suggested that favorable perceptions of the learning environment were associated more with discouragement of the undesirable approaches than with encouragement of the desirable approaches to study. In another study, Richardson, Dawson, Sadlo, Jenkins and Maccines (2007) found that medical students' perceptions of their courses were strongly associated with their approaches to study.

Swee-Choo (2008) investigated the approaches to studying of the students of the twinning program in Malaysia. Twinning educational programmes are run in partnership with the educational institutions in western countries. The results of the qualitative study showed that the students' perceptions of the learning environment were associated with their approaches to study. It was found that inappropriate teaching practices (unenthusiastic and unimaginative teaching, irrelevant material, favoritism and inappropriate feedback) were hindering student learning and inducing them to use inappropriate approaches to study. In another study conducted by Phan and Deo (2008) with students who were enrolled in a professional-based education course at the University of South Pacific, found that the students used surface approach and the deep approach. The results supported Richardson's (1994) two-factor theoretical model who argues that there are only two approaches to study: deep approach and surface approach. He regards the strategic approach as an additional dimension which is part of both the deep and surface approaches. They concluded that surface approach was consistent with the institutional culture that did not encourage deep learning. They argued that the use of surface approach might also be explained in larger context where students were under familial pressure to excel academically.

Kember, Leung and Mcnaought (2008) reported the results of a workshop activity with teaching assistants in Hong Kong. The participants were asked to report their approaches to learning in postgraduate courses that they were taking and their approaches in the most disliked undergraduate course. The Revised Study Process Questionnaire was administered to the students. Learning environment seemed to influence the students' approaches to study; the students were more likely to use the deep approach in the postgraduate course and the surface approach in the most disliked undergraduate course. The students tended to keep on using their preferred approach in the postgraduate course; however, they tended to change their approach in the most liked undergraduate course according to the perceived demands. Webster, Chan, Prosser and Watkins (2009) found in a study that students who had positive perceptions of their courses were more likely to use the deep learning strategies, and were less likely to use the surface learning strategies. Similar results were also obtained by Ullah et al. (2011) in a study with the undergraduate and master's students at two universities in Pakistan.

Curriculum Design and Approaches to Learning

Results of many studies showed that students changed their approaches to studying in response to change in the learning environment. Davies, Sivan and Kember (1994) examined the approaches to study of undergraduate students who were following an honors degree in business studies at Hong Kong Polytechnic. The course was redesigned to enhance the students' approaches to learning. The questionnaire (SPQ) was administered to the students twice; first, at the time of their enrolment, and second at the beginning of second year. Their conceptions of learning were also measured at the two occasions. It was found that the redesigned program enhanced the students' approaches. Elsewhere, it was found by Aggarwal and Bates (2001) that students were capable of changing their approaches to study in response to perceived demands of the learning environment; teaching, relevance and interest seemed to influence their approaches. Moreover, the students of the same cohort perceived the same learning environment differently and the same student tended to use different approaches in different situations.

Wierstra, Kanselaar, Linden, Lodewijks and Vermunt (2003) found that students changed their approach to studying in response to change in the learning environment. The study was conducted with 610 Dutch students who were studying abroad, and 241 European students studying in Netherlands. They used the ILS (Vermunt, 1996, 1998) and an Inventory of Perceived Study Environment to measure the students' approaches and perceptions, respectively. They found that constructive

learning was associated with the student-oriented environment; whereas, reproductive learning was associated with reproduction-oriented and teacher-oriented learning environment. Moreover, change in the learning environment was associated with change in the approaches to study; the South European students tended to use constructive learning approach during their stay in Dutch university and perceived the Dutch learning environment less reproduction-oriented and more student-oriented.

To examine within-student differences in approaches to studying, Eley (1992) examined the approaches to studying of a same group of students in different course units. He argued that previous studies by Entwistle and Ramsden (1983) and Entwistle and Tait (1990) investigated the between-student differences in perceptions and approaches to study. He maintained that approaches and perceptions of a same group of students in different course units would provide better understanding of relationship between perceptions and approaches. He administered the modified version of the 42-item SPQ to students who were concurrently enrolled in two courses of an undergraduate program. One course unit was of reflective nature and the other was traditional. It was found that a student used different approaches in the two course units, in response to the perceived requirement of the courses. The findings also suggested that different students in a class may have different perceptions of the learning context. Tait and Entwistle (1996) concluded that use of ineffective study strategies by a student, is his/her reaction to the courses and teaching that he/she experiences, not the characteristic of the student.

Similar results were also obtained by Vermetten, Lodewijks and Vermunt (1997) who investigated the approaches to study of first-year students who were taking four different courses in Law in Tilburg University, Netherland. They modified the wording of the items to refer to the particular courses. They also interviewed the lecturers and examined the course material to obtain information about the characteristics of the courses, teaching and assessment in those courses. The courses varied in characteristics and the students adopted different approaches in different courses in response to demands of the courses. The study confirmed the within-student difference in learning strategies (Eley, 1992) as the same students adopted different strategies to learn in different courses. They concluded that the memorizing strategy (i.e., surface approach) was stable across different contexts whereas concrete processing strategy (i.e., deep approach) showed fluctuations. This was in contrast to Richardson (1994) who found the deep approach consistent and coherent across different cultures while the surface approach reflecting the students' efforts to meet the demands of the particular learning contexts.

The effect of a course design on students' approaches to learning was also investigated by Hambleton, Foster and Richardson (1998) in the context of two courses in mathematics. One course was lecture-based and the other had Personalized System of Instruction (PSI; a student centered-course design). The students tended to use the deep approach in the course which had multimedia variant of PSI. The results evidenced causal link between PSI-based course design and the deep approach; former encouraged the deep approach to study. They concluded that the students could be induced to use appropriate approaches to study through systematic interventions. In another study, the correlation and regression analysis were carried out by Sharma (1997) with the aim to investigate associations and causal relationships between the perceptions and the approaches. He found that the students' perceptions influenced their approaches to study. The students were experiencing fear of failure and were syllabus-bound in their studies. The results suggested that these two features were due to heavy workload, lack of effort to show relevance of the subject, and lack of effort by the staff to create students' interest in the subject. In another study ASI (Entwistle and Ramsden, 1983) was used by Cowman (1998) to investigate the approaches to study of the student nurses. The student nurses from the Republic of Ireland tended to use more appropriate approaches to studying than the students from Northern Ireland. The results showed that approaches to study were influenced by the demands of teaching and assessment.

To investigate the relationship between students' approaches to studying and their perceptions of preferred and the actual learning environment, Wong and Watkins (1998) carried out a longitudinal study with the secondary school students of mathematics in Hong Kong. They employed classroom environment scale and the Learning Process Questionnaire to measure the perceptions and approaches to learning, respectively. They found association between the students' perceptions and their approaches to study. The deep approach was associated with the perceptions of enjoyable classroom environment. Moreover, learning was associated with both the perceptions of preferred and the perceived learning environment. In a meta-analysis, Watkins (2000) found that appropriate study strategies were encouraged in the learning environments characterized by supportive teaching, appropriate workload, active student participation and appropriate assessment. Students' learning patterns and their relationship with the personal and contextual factors were investigated by Vermunt (2005). He distributed the Inventory of Learning Styles (ILS) to the students from seven disciplines and the data was also collected about the academic disciplines, age gender, prior education and exam performance. He found that the academic discipline was the strongest predictor of the students' learning patterns.

Approaches to Teaching

Results of various studies suggest that students' approaches to study are highly influenced by their teachers' approaches to teaching. Kember and Gow (1994) developed a questionnaire to measure the teachers' orientations to teaching and administered it to the teachers in fifteen departments at two institutions of higher education in Hong Kong. Factor analysis identified two approaches to teaching: learning facilitation and knowledge transmission. The teachers' orientations to teaching were associated with their students' approaches to study; knowledge transmission was associated with less desirable approaches to study and learning facilitation was associated with desirable approaches to study. The data also suggested that teaching practices, curriculum design, workload and assessment practices at the departments were influenced by the orientations to teaching in those departments. Similar results were also obtained by Trigwell, Prossor and Waterhouse (1999) who studied the relationship between teachers' approaches to teaching and their students' approaches to study. The Approaches to Teaching Inventory (ATI; Trigwell and Prossor, 1996) and the modified SPQ (Biggs, 1987) were used to collect the data from the teachers and their students, respectively. Both the teachers and their students completed the questionnaires with respect to a specific lecture topic. It was found that transmission-based teaching was associated with surface approach to study by their students, and student-centered teaching was associated with deep approach by their students.

Students' learning and its relationship with their teachers' approaches to teaching was studied by Prosser, Ramsden, Trigwell and Martin (2003). The data were collected from 8829 students across 51 subjects. They modified Biggs' (1987) SPQ and the CEQ (Ramsden, 1991) so that the statements in the questionnaires referred to particular subjects that the students were studying. They surveyed 408 teachers of the students by using Prossor and Trigwell's Approaches to Teaching Inventory (ATI) to measure their approaches to teaching. They found that dissonant and incoherent teaching (incoherent relationship between the teachers' perceptions of teaching context and approaches to teaching) was associated with poor quality learning experiences.

The effect of a staff development programme on teachers' conceptions of teaching, teaching practices and the students' approaches to learning was studied by Angela ho, Watkins and Kelly (2001). The CEQ (Ramsden, 1991) and the RASI (Entwistle, 1992) were administered to two cohorts (pre and post program years) of students to measure their perceptions and approaches to study, respectively. Change

in the teachers' conceptions of teaching resulted into improvement in teaching as perceived by the students. Similar results were also found by Gibbs and Coffey (2004) in a study to examine the effect of training of university teachers on their approaches to teaching and their students' approaches to learning. Students' evaluation of their teachers was carried out by using five scales from the Student Evaluation of Educational Quality Questionnaire (SEEQ) and a scale (good teaching) from Module Experience Questionnaire (MEQ). The teachers' approaches to teaching were measured by using two scales from the ATI and their students' approaches to learning were measured by two scales (deep approach and surface approach) from the MEQ. The data were collected twice; once, before the start of the training and then one year later. The control group did not receive the training and the same questionnaires were also administered to the teachers and their students in the same way and the same time. It was found that the training group became more student-focused and less teacher-focused. The students' evaluation of their teachers also improved significantly. The students of the training group were also less likely to use the surface approach after the training of their teachers.

In order to study the groups' approaches to learning two classes of undergraduate students from two different universities in Hong Kong were selected by Yan and Kember (2003). The students in group 'A' described that their teachers encouraged student-student and teacher-student interaction. The curricular and extra-curricular activities (e.g. games, group discussions presentations) encouraged the students' engagement with learning. On the other hand, students in group 'B' described that student-teacher and student-student interaction was not encouraged by their teachers. Teaching, assessment and workload were also not viewed positively by the students. The students in group A, adopted engager behavior (i.e., deep approach to learning) and the group B students adopted avoider behavior (i.e., surface approach to learning). They concluded that different teaching learning environments in two classes influenced the students' group learning behavior.

Review and Reflections

The present study presents a broad overview of a variety of research carried out by several educationists in various institutions located in different regions of the world. The main focus of this study was to investigate the relationship between the approaches to learning and the quality of the learning outcomes. An analytical review of earlier work provides sufficient evidence to support the argument that approaches to learning are associated with the quality of learning. It highlights that the deep approach leads to better quality learning outcomes and the surface approach leads to

poor quality learning outcomes. It also reflects that to achieve the desirable results, the objectives of an educational course should be specified. Appropriate teaching-learning activities should be organized for the students to achieve those objectives particularly in relation to the level of understanding required from the students. The assessment practices then evaluate whether the students have achieved the level of understanding that was specified in the objectives.

The review of literature related to students' approaches to learning and their learning experiences (i.e., perceptions of the learning environment; teaching and assessment practices, interaction among students, and between students and teachers, feedback, curriculum design and delivery) provides plenty of evidence that the students' perceptions of the learning environment are associated with their approaches to learning. Moreover, the literature shows that the direction of causality runs from perceptions to approaches to learning. The outcome of the present research suggests that student-centered learning environment encourages deep approaches to learning; whereas, teacher-centered learning environment encourages surface approaches to learning.

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