A Conceptual Analysis on the Approaches to Learning

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Abstract

The concept of approach to learning was first identified by Marton and Saljo in 1976. Numerous researchers have conducted studies on students' approaches to learning since 1976. There appears considerable confusion in the literature concerning the terms cognitive styles and learning styles. Therefore, there is a remarkable ambiguity about the position of the approaches to learning within this conceptual base. In this paper, a comprehensive analysis of the concept of approach to learning is tried. First, the conceptual confusion in the literature on learning styles and the position of the approaches to learning within this conceptual base is discussed. A depth analysis on the concept of approach to learning is presented through discussion of research results in the literature about relationship between the approaches to learning, learning/teaching variables, and learning environments. According to this analysis, approach to learning can be considered as a bridge between the learning environment and cognitive/learning styles. An approach to learning adopted by students is determined by lots of variables such the characteristics of students, learning environment, and learning outcomes. When the relation of students' approaches to learning with these variables is considered it can be argued that the approaches to learning cannot only be seen as mere student-dependent characteristics. Therefore, if proper strategies are applied it might be possible to move students' approaches to learning from a surface to a deeper orientation.

A Conceptual Analysis on The approaches to learning

Researchers have conducted numerous studies on students' approaches to learning since Marton and Saljo (1976) had introduced the concept. The approaches to learning is seen by many educators as powerful means of modeling student learning and the quality of learning outcomes (Duff , Boyle, & Dunleavy , 2002).

An approach to learning is a concept about students' motivation on learning and the use of appropriate strategies by students (Zhang & Stenberg, 2000). It describes the nature of the relationship between the student, context, and task (Biggs, Kember, & Leung, 2001). Basically, two approaches to learning have been identified: the 'surface' approach and the 'deep' approach (Marton, & Saljo, 1976). In addition, Biggs (1987) has identified achievement approach as a third learning approach.

It is generally believed that the use of a deep learning approach is associated with higher quality learning outcomes and a surface approach with lower quality learning outcomes (Gijbels, Dochy, Van den Bossche, & Segers, 2005). In addition, it is accepted that a deep approach will contribute positively to learning outcomes (Zeegers, 2001). Therefore, it is considered important that students be encouraged to adopt a deep approach. According to Felder and Brent (2005), the goal of instruction should be to induce students to adopt a deep approach to the subjects that are important for their professional or personal development.

There appears a considerable confusion in the literature concerning the terms cognitive styles and learning styles. Numerous authors and researchers use the terms interchangeably. On the other hand, various authors draw a distinction between cognitive styles and learning styles (Altun & Cakan, 2006). There is a remarkable ambiguity about the position of the approaches to learning within this conceptual base. In this paper, a depth analysis of the concept of approach to learning is tried. First, the paper focuses on the conceptual confusion in the literature about learning styles and then the position of the approaches to learning within this conceptual base is discussed. A depth analysis on the concept of approach to learning is presented through discussion of research results in the literature about relationship between the approaches to learning, learning/teaching variables, and learning environment.

Conceptual Base

There appears considerable confusion in the literature concerning the terms cognitive styles and learning styles. Numerous authors and researchers use the terms interchangeably. However, various authors also draw a distinction between cognitive styles and learning styles (Altun, & Cakan, 2006).

The concept of learning styles has been used to assign a wide variety of student attributes and differences. Some students are comfortable with theories and abstractions; others feel much more at home with facts and observable phenomena; some prefer active learning and yet, some others learn toward introspection; some prefer visual presentation of information, and others prefer verbal explanations (Felder, & Brent, 2005, p. 58). A learning style is the composite of cognitive, affective, and psychological factors that serve as an indicator of how an individual interacts with and responds to the learning environment (Duff, 2000).

The term cognitive style appears to relate to very similar issues of individual differences that are addressed by the concept of learning style. Sadler-Smith (2001) suggested that this is due to the common origins of the two terms. According to Riding (1997), the concept of cognitive style is used to denote an individual's consistent preferences for particular ways of gathering, processing, and storing information and experiences. It is seen as a fusion of particular methods of thinking and personality (Cuthbert, 2005).

According to Liu and Ginther (1999), cognitive styles are, in general, rather related to theoretical or academic research, whereas learning styles are more related to practical applications. A major difference between these two terms is the number of style elements involved. Specifically, cognitive styles are more related to a bipolar dimension whereas learning styles are not necessarily either/or extremes.

Curry (1983) grouped the different perspectives into three layers: instructional preference, information processing style, and cognitive personality style (Figure 1). This classification assumes progressively deeper layers of an onion. It helps to structure in a large number of different approaches towards this type of individual differences in learning
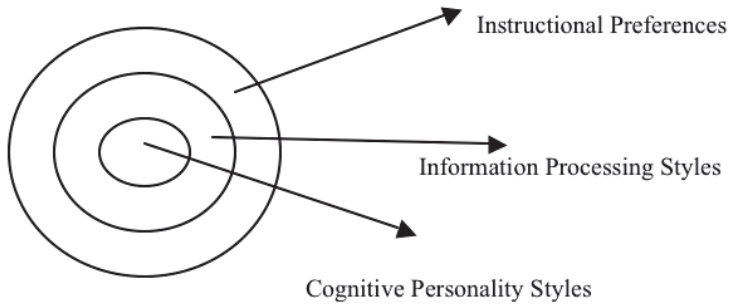
Figure 1. Curry's (1983) onion model (Price, 2004).

The core of the onion represents the various cognitive elements of personality, which are related to more fundamental, stable and internal cognitive processes, and are less modifiable via instruction. The next layer comprises the information processing styles that are related to how an individual prefers to process information from external stimuli. They are influenced by the inner layer of cognitive personality style and in turn influence the outer layer of instructional preferences. Instructional preferences depend on the environment in which the student prefers to learn. This is influenced by the former two layers and is the least stable of the traits (Price, 2004).

An important common theme in both the work of Kolb and of Dunn is that learning styles are seen as stable aspects of the individual's personality. This implies that an individual's learning style is unlikely to change in short term (Cuthbert, 2005). It is however acknowledged that the characteristics of the learning environment and learning experiences influence their development (Desmedt & Valcke, 2004). These stable styles interact with environmental conditions, resulting in the individual's selection of specific approaches to learning (Entwistle, 1988; Lindemann, Duek, & Wilkerson, 2001).

The Position of the approaches to learning within This Conceptual Base

Researchers have set up numerous studies on student approaches to learning since the work of Marton and Saljo (1976) who identified differences in the approaches to learning. The approaches to learning are

seen by many educators as a powerful means of modeling students lear-
ning and the quality of students learning outcomes (Duff et al., 2002).

Building on the results of a citation analysis, an alternative overview
of the cognitive style and learning style literature was developed by
Desmedt and Valcke in 2004. They identified three distinct theoreti-
cal orientations. Two of them form the American tradition in learning
styles research and are related to the work of Kolb, the author with the
strongest impact on the learning styles literature. They are at the core of
the learning styles research. The third, the British-European orientation
rather focuses on phenomenographic research into the approaches to le-
arning. The Learning Styles model is in line with mostly the US writers
and those writing in the field of management education. The Approac-
hes to Learning model appears to have been adopted mainly by the non-
management educators in the UK and Australia (Cuthbert, 2005).

A number of instruments or inventories have been developed to mea-
sure the approaches to learning. These include the Approaches to Study
Inventory (ASI; Entwistle, & Ramsden, 1983), Lancaster Approaches
to Studying Questionnaire (LASQ; Ramsden, 1983), Biggs' Study Pro-
cess Questionnaire (SPQ; Biggs, 1987), Inventory of Learning Styles
in Higher Education (ILSHE; (Vermunt, 1994), Approaches to Study
Skill Inventory for Students (ASSIST; Tait, Enwistle, & Mccune, 1998),
Revised Two-Factor Study Process Questionnaire (R-SPQ-2F; (Biggs
et al., 2001).

A focus on the approaches to learning is justified for several reasons.
First, it is widely known that students' approaches to learning can affect
their academic performance. This is borne out by the fact that acade-
mically successful students are more likely to utilize a deep approach to
learning than those who are less successful (Tiwari et al., 2006; Zeegers,
2001).

An approach to learning describes the nature of the relationship bet-
ween the student, context, and task (Biggs at al., 2001). Basically, two
approaches to learning have been identified: the "surface" approach and
the "deep" approach (Marton, & Saljo, 1976). A deep approach to le-
arning is considered as an appropriate approach as students learn for
understanding, derive enjoyment from the learning task, and apply the
acquired knowledge to the real world. On the other hand, a surface app-
roach to learning is inappropriate as students rely on rote learning and

memorization, avoid personal understanding, and are unreflective about their learning experience (Biggs et al., 2001; Tiwari et al., 2006).

The deep approach, which implies that a student learns for understanding, is characterized by students who *(i)* seek to understand the issues and interact critically with the contents of particular teaching materials, *(ii)* relate ideas to previous knowledge and experience, and *(iii)* examine the logic of the arguments and relate the evidence presented to the conclusions (Beattie, Collins, & McInnes, 1997; Enwistle, & Ramsden, 1983). Students who take a deep approach do not simply rely on memorization of the course materials. They adopt an intrinsic motivation to learn with an intellectual curiosity rather than looking for external rewards. Once the information to be learned makes sense, they try to fit it into the available coherent body of knowledge (Felder, & Brent, 2005, p. 63).

According to Entwistle and Ramsden (1983), the deep learning approach indicates a desire to relate the task to personal experiences outside the study context, see it as a part of one's personal development; seek relationships which help to integrate the parts into a whole, and integrate the underlying structure or intention of the whole task. In contrast, surface learning approaches focus on the elements of a task rather than the whole; tend to define it as a memory task, and see the subject matter as external to one's self.

The surface approach, which implies that a student learns simply to memorize facts, is characterized by students who *(i)* try simply to memorize the parts of the content of teaching materials and accept the ideas and information given without questioning, and *(ii)* concentrate on memorizing facts without distinguishing any underlying principles or patterns (Beattie et al., 1997; Enwistle, & Ramsden, 1983). Students who adopt a surface approach to learning memorize facts but do not try to fit them into a larger context and they follow routine solution procedures without trying to understand their origins and limitations. These students commonly exhibit an extrinsic motivation to learn and an unquestioning the acceptance of everything in the textbook and in lectures (Felder, & Brent, 2005, p. 63).

Biggs (1993) proposed a framework for understanding student learning through the consideration of the relationship between what teachers and students do and think and the nature of student learning outcomes

(Dart et al., 2000). These results in a model are commonly referred to as the 3P model. This model relates the main components in a classroom learning in terms of the three P's: Presage (students' characteristics and teaching context), Process (task processing), and Product (nature of outcome). It helps to apprehend the approaches to learning and their position in the context of the learning environment.
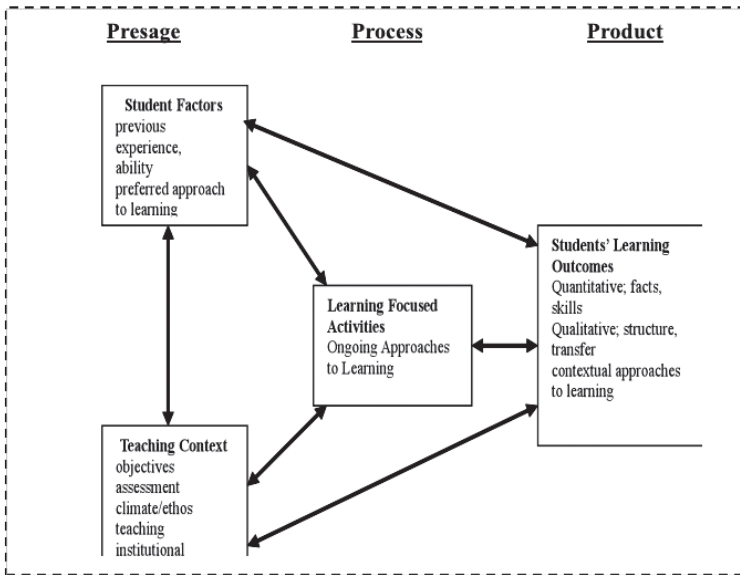

Figure 2. *3P model of students learning (Biggs, 1993; Biggs, Kember, & Leung, 2001)*

In the 3P model, student factors, teaching context, on-task approaches to learning, and the learning outcomes mutually interact, forming a dynamic system (Biggs et al., 2001). The presage factors include both student characteristics and the aspects of the teaching context. The student presage factors are relatively stable learning-related characteristics that include the conceptions of learning, prior knowledge, motivation, work habits, locus of control, perceived self efficacy, learning style, and social and cultural factors. The teaching presage factors include the conceptions of learning and teaching, teaching style and methods, curriculum organization, task difficulty, assessment procedures, time available, resource materials, the classroom climate, and etc. the process factors are the result of the interaction between student and teaching presage factors and refer to the way students handle the learning task by adopting a

deep, surface, or achieving approach to learning. The product factors are the outcomes of learning and are determined mainly by the approaches to student learning.

In this model, learning approaches are defined in three ways: preferred, ongoing and conceptual. A preferred approach refers to how individuals differ within a given teaching context (presage). Ongoing approaches refer to how specific tasks are handled by students (process). Contextual approaches refer to how teaching contexts differ from each other (product).

Each factor affects every other factor so that, for instance, the student's preferred approach will adjust to the particular context, course being taught, and to the success or otherwise of the outcome (Biggs et al.; 2001). A change to any part of the system affects the other parts of the system. This could be called the calibration dynamics in the model. It is be the possible to clarify the position of individual differences and the approaches to learning in a learning environment by means of the integration of the 3P model (Figure 1) and the onion model (Figure 2).
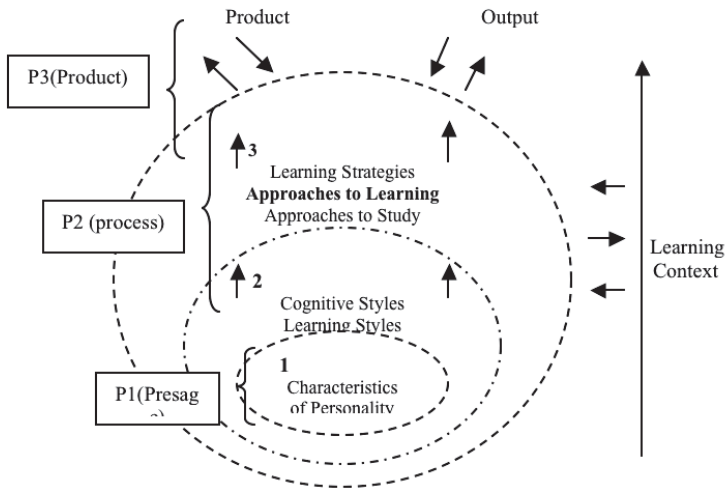

Figure 3. *Individual Differences and Learning Environment*

Figure 3 shows the interaction between individual differences and the learning environment. Students' personality characteristics are situated in the center and this cluster (1) is far away from the influence of the

learning context. It may be considered as a presage factor in the learning environment.

Cluster 2 is the closest to the characteristics of personality. It is rather difficult to change the elements in this cluster in a short time. However, it affects the elements in cluster 3. The elements in Cluster 2 and 3 may be considered as process factors in the learning environment. Cluster 3 is more closely related to the learning context and it is probably heavily influenced by the learning context. Furthermore, Cluster 3 has an effect on the learning outputs and it is influenced by the learning outputs. Most recent research investigates the bilateral relationship between the approaches to learning and learning context and the approaches to learning and learning outputs (e.g., Campbell, & Smith, 1997; Crawford, Gordon, Nicholas, & Prosser, 1998; Dart et al., 1999; Dart et al., 2000; Goh, 2005; Hativa, & Birenbaum, 2000; Lizzio, Wilson, & Simons 2002; Ma, 1994; Ramsden, & Entwistle, 1981; Trigwell, Prosser, & Waterhouse, 1999; Zeegers, 2001).

Relationship of the approaches to learning with Instructional and Learning Variables

Student approaches to learning have been shown to be dependent on a number of factors some of which are categorized as personal (e.g., student gender, age, prior experiences) and contextual (e.g., teaching/learning activities/methods, perceived workload, assessment procedures, institutional values; Biggs, 1987; Zeegers, 2001). In the 3P model, these factors have been investigated as presage factors. Duff (2002) found that age is positively correlated with deep approach and metacognitive awareness and negatively correlated with surface approach. According to Groves (2005), age and life experience may also be contributing factors in determining the approach to learning.

Biggs (1987) did compare earlier science students' approaches to learning with art-based students' approaches to learning. He described science students as being fundamentally different in their approaches to learning compared to the students in arts-based courses and reported a higher use of surface approach and adopting an achieving approach.

When investigating the impact of the teaching/learning activities on the differences in the approaches to learning of students, Newble and Clarke (1986) demonstrated that students in a problem-based medical course displayed to a larger extent deep approaches to learning and to a

lower extent surface approaches to learning as compared to students in a traditional medical course.

Zeegers (2001) explored the change in students' approaches to learning over time within the same cohort of science students. Findings of his study support the view that student perceptions of study tasks, time restraints, content overload, past and present teaching, and assessment procedures all have some impact on the general approach to study being adopted by the students. Furthermore, from a student's perspective, it may be more strategic for him/her to rely on study strategies which he/she believes will lead to success. According to Prosser (2004), surface approaches to learning are generally associated with the perceptions that the workload is too high and that assessment is testing reproductive learning, whereas deep approaches to learning are associated with the perceptions that teaching is good and goals and standards are clear.

Lizzio et al. (2002) found that the perceptions of heavy workload and inappropriate assessment push students to adopt surface approaches to learning, but the perception of workload has no systematic relationship to students' use of deep approaches to studying. The perception of a good teaching environment influences students towards the adoption of deep approaches to learning, and conversely, students' perceptions of a bad teaching environment lead to surface approaches to learning. The strongest predictors a deep approach to learning are students' perceptions of the quality of the teaching and the appropriateness of the assessment.

In recent research, the relationship between students' approaches to learning and learning outcomes has been emphasized to a large extent (Crawford et al., 1998; Snelgrove, & Slater, 2003; Zeegers, 2001). Although the results seem to be inconsistent, the use of a deep learning approach is, in general, associated with higher quality learning outcomes and a surface approach with lower quality learning outcomes (Gijbels et al., 2005). It is also believed, in general, that a deep approach will contribute positively to the learning performance (Zeegers, 2001). Therefore, encouraging students to adopt a deep approach is considered important.

In short, the approaches to learning are influenced by student characteristics, learning environment, and learning outcomes. When the relationship between the approaches to learning and these variables is considered, it is possible to say that the approaches to learning are not simply, or only, student characteristics. The approach to learning that will be adopted a student is determined by a large number of variables. Therefo-

re, if proper strategies are applied, it might be possible to move students learning approaches from a surface to a deep orientation. However, it is not sufficient to tell students what approach they should adopt.

Dart et al. (2000) suggest two ways of helping teachers to facilitate their students' search for meaningful learning. First, teachers need to help their students develop qualitative conceptions of learning, that is, learning is about developing meaning and understanding. Secondly, teachers can promote deep approaches to learning through the creation of learning environments that students perceive as safe, supportive, and offering helpful relationships. Teachers can also present opportunities for exploration, inquiry, and experimentation by providing problems to be solved.

Discussion

In this paper, first, the focus was on the conceptual confusion in the literature on learning styles. Curry's onion model was used to structure the conceptual base. In order discuss the position of the approaches to learning within this conceptual base, an integration of the 3P model and onion model was presented.

Learning styles are seen as aspects of the individual's personality that are unlikely to change in short term. The characteristics of the learning environment and learning experiences influence their development. Learning styles interact with environmental conditions that determine individual's selections of specific approaches to learning. As a result, the approaches to learning can be considered as a bridge between the learning environment and cognitive/learning styles.

It has been emphasized in recent research that the use of a deep learning approach is associated with higher quality learning outcomes whereas a surface approach is associated with lower quality learning outcomes. Therefore instruction should encourage students to adopt a deep approach to learning.

Evidence from the available research shows that student approaches to learning depend on a number of variables. The approaches to learning cannot be seen as mere student dependent characteristics. Which approach to learning will be adopted a student is determined by lots of variables. When the relationships of students' approaches to learning and abovementioned variables is considered, it can be argued that the learning environment is one of the most important variables affecting students' approaches to learning.

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