

Can Students' Concept of Learning Influence Their Learning Outcomes?

Despina Varnava Marouchou*
European University Cyprus, Cyprus

Abstract: This paper aims to readdress the lack of empirical data concerning university learning and in particular the dynamics students' conceptions of learning may have on students' learning outcomes. This paper is written at a time when the EU commission for Higher Education (HE) through the Bologna Process declaration has put into action, since 1999, a series of reforms needed to make European Higher Education compatible, efficient and competitive for students and academics alike. One of the reforms was the development of learning outcomes in the form of the European Credit Transfer and Accumulation System (ECTS). As part of the process the European universities require to identify and describe the learning outcomes a student is supposed to achieve, in a particular course. The learning outcomes are, now, expected to be clearly specified in all the university course syllabuses. The main argument stated within this paper is that the design of effective learning outcomes, such as the ECTS, especially for curriculum development, cannot be successfully achieved in the absence of the students' own experience of how they conceive learning to be, including the methods (approaches) they use for learning. Thus, the first aim of this investigation is to analyse the students' conceptions of learning and the second aim is to examine, through prior research evidence, the effects these conceptions may have on learning approaches and specifically on learning outcomes. Drawing on a 2007 study of Cypriot students' conceptions of learning, this paper discusses the possibility of a relation between these issues and outlines the importance of taking them into consideration when exploring learning outcomes, curriculum and syllabus design and the professional development of faculty.

Keywords: Students' learning conceptions, learning outcomes, learning approach, learning perspectives, higher education

Introduction

The overall objective of the formation of the ECTS, as part of the Bologna recommendations, was to promote a practical and methodological approach that could be used to improve the competitiveness, as well as the mobility of university students and courses across the European nations. The importance of this system, however, is that it is exclusively based to the learning outcomes students are expected to achieve.

A major drive for exploring conceptions, is the assumption that students' views on learning have an impact on the way they approach their learning, which in turn may influence the quality of their learning outcomes. Even though it has been primarily claimed, over the last two decades,

* Corresponding author (d.marouchou@euc.ac.cy)

Suggested citation: Varnava-Marouchou, D. (2012). Can students' concept of learning influence their learning outcomes? *Higher Learning Research Communications*, 2(2), 18-33. <http://dx.doi.org/10.18870/hlrc.v2i2.23>

that there is a possible relationship between students' conceptions of learning, their learning outcomes and academic achievements (Purdie, Hattie & Douglas, 1996; Caso 2005), there is still little research to support this. Several studies on students' conceptions of learning and approaches to learning (Martin & Ramsden, 1987; Norton & Crowley, 1995) have been cited as providing such evidence. However, these studies focused on improving students' learning strategies, rather than to provide information about the relationship between conceptions of learning and learning outcomes.

In this paper an attempt is made to explore any possible links between these perspectives that may help to shed light in further understanding student outcomes within the context of higher education.

This paper was initiated by the findings of a research project undertaken in a local university, of students studying Business Studies, in the city of Nicosia, Cyprus. The idea for the project was sparked by the personal experience of the author in the academic life of the university for the last sixteen years and by the ever-increasing complaints made by faculty regarding their students' poor outcomes and consequently poor grades.

Conceptions, Approaches and Outcomes of Learning

Learning Outcomes

The term 'learning outcomes' as used in this paper and in wider educational circles, reflects a conceptual shift towards making learning more meaningful and effective for students. They are statements of what a learner is expected to know, understand and is able to demonstrate at the end of a period of learning. Watson (2002:208) defines a learning outcome as 'being something those students can do now that they could not do previously ... a change in people as a result of a learning experience'. It mostly refers to the learning outcomes that emphasise understanding and meaning rather than learning outcomes which concentrate on content and acquisition of factual knowledge. Although, in the last decade or so, Higher Education has recognised that much is to be gained by moving away from the content-based curriculum to a more student-centred approach (Robertson, 2001), it largely ignored to examine the students' own experiences of how they understand learning to be.

Indeed, there is an increasing need to understand what is involved in learning from the students' own explanations of what learning means to them and how this relates to the quality of their learning outcomes (Entwistle, 1997). In the research literature, it is generally agreed that non-cognitive, individual differences, such as the conceptions and approaches to learning have been recognised as potential predictors of academic success (Cantwell and Scevak, 2004) and are thought to play a key role in the quality of student learning outcomes. A brief introduction of both these concepts is outlined below.

Conceptions of Learning

The term 'conceptions' as specified in this paper, describes the way an individual conceives or experiences a phenomenon that may influence the individual's actions (Freeman & Richards, 1993). Consequently, in many studies 'conceptions' have often been referred to as 'perceptions', 'beliefs' or 'attitudes'. Pratt (1992: 204) stated that 'we view the world through the lenses of our conceptions, interpreting and acting in accordance with our understanding of the

world'. As a result, conceptions may influence the way students act in their particular situation which is in accordance with these conceptions.

Research on students' conceptions, and more specifically conceptions of learning, was initiated over 30 years ago, in the early 1970s, by Marton and Saljo. Marton and his colleagues argued that students at their initial stages of their university life bring with them their own beliefs regarding learning derived from their previous learning experiences, usually their school. Marton et al. (1993) divided these conceptions into six categories of learning, as: a) learning as increasing one's knowledge; b) learning as memorising and reproduction; c) learning as applying; d) learning as understanding; e) learning as seeing something in a different way; and f) learning as changing as a person. The first three conceptions were referred to as 'reproductive' and were seen as lacking in understanding and meaning, whilst the last three were referred to as 'transformative' and were seen as being concerned with understanding and meaning (Marton & Saljo, 1976a, 1976b; Saljo, 1979). Many studies which followed confirmed same or similar findings (Taylor and Gibbs, 1980; Van Rossum and Schenk, 1984; Van Rossum & Taylor, 1987; Lucas, 2000).

The key point to be made within all these studies, is that conceptions are not permanent and can indeed change from reproductive to transformative as students develop through university (Perry, 1970; Marton et al., 1993; Hettich, 1997). The change will take place when the student is made to understand that his/her learning at the university can result in his/her changing as a person (Marton et al., 1993). This transformation will however depend on how the students perceive their academic activities which in turn, may determine the way they approach these activities (Trigwell and Ashwin, 2006). Indeed, a great deal of research on student learning has indicated that students' conceptions are possibly related to their approaches they use for learning, which in turn influence their learning outcomes. The following section addresses the issue of approaches to learning.

Approaches to Learning

The term 'approaches to learning' is increasingly used to emphasise the importance of students and lecturers being aware of how they learn and how they teach. An approach to learning is, therefore, regarded as a key concept in teaching and learning, and describes a qualitative explanation of what and how students learn (Ramsden). It 'describes a relation between the student and the learning he or she is doing' (1992: 44) by representing 'what a learning task or set of tasks is for the learner' (Ramsden, 1987; Prosser and Trigwell, 1999).

By acknowledging and understanding the approaches to learning we may be in a better position to recommend 'appropriate solutions for improving student learning' (Sharma, 1997: 127) and consequently learning outcomes.

A number of researchers of students' approaches to learning have separated the initial approaches into two groups: namely 'surface' and 'deep' approaches (Marton and Saljo, 1976a, 1976b; Saljo, 1979; Marton et al., 1993). Students who employed surface approaches focused on the memorisation and reproduction of information, and generally viewed learning as acquiring knowledge merely for passing examinations, with little or no focus on the processes of learning. Students using deep approaches, on the other hand, aimed for understanding, forming a wider picture of how knowledge fits together and represents reality (Sharma, 1997). It is therefore assumed, that the actual learning processes and approaches students use are generally associated with the quality of learning outcomes.

Of the initial six conceptions by Marton et al. (1993), for example, the first three are normally associated with surface approaches to learning and the last three with deep approaches. According to Marton et al., (1993) the first three focused on 'quantitative' dimensions of learning, whilst the latter three are typically 'qualitative', and relate to gaining meaning and understanding. Even though some studies have criticised aspects of the deep/surface distinction, there has been a general agreement about their usefulness in students' learning (Richardson, 1994).

The important point to be made is that research into both students' conceptions and approaches to learning has increased the attention given to how learning is experienced, understood, or conceptualised by learners themselves and remains a powerful influence on student learning in higher education (Entwistle, 1997).

The Theoretical Framework

Perhaps the most obvious distinction made within this framework is, to describe the students' own experiences of learning, rather, than trying to examine the students' academic performance. In deepening our understanding of the theme of the present paper we consider two main perspectives of students' learning: the meta-cognitive and the phenomenographic (Purdie, et al., 1996).

Meta-cognitive researchers explored students' epistemological conceptions about knowledge and learning (Ryan, 1984a; Schommer, 1990, 1994). Phenomenographic researchers, on the other hand, analysed the variety of meanings that learning has for people and the different ways in which they learn, using mainly qualitative methods. Both the epistemological and the phenomenographic perspectives of learning are important in understanding the theoretical framework underpinning the current theme.

The Epistemological Perspectives of Learning

Researchers since the early 1990s have begun to acknowledge the important role students' epistemological conceptions played in conceptual change learning (Driver et al., 1994). The conceptual change model requires a central role for learners to actively construct and manage their learning. The link between conceptual change and meta-cognition has been noted by a number of education researchers. Many of them have suggested that meta-cognition and conceptual change are 'totally intertwined' in such a way that may influence the change of ideas and conceptions about learning (Hewson, 1996; Gunstone, 1994; Driver et al., 1994).

The theory that underpins conceptual change learning was originally developed using Piaget's (1977) cognitive model and Perry's (1970, 1981) schema theory of epistemological conceptions. Perry attempted to clarify how individuals move from their 'common sense' conceptions to new more 'sophisticated' conceptions. During their time in higher education, students may gradually change from a belief in 'dualism' - where knowledge is concrete and provided by the lecturers - to recognition of 'relativism' (or non-dualism) - where they have to think and interpret meaning for themselves (Perry, 1981; Pillay, et al., 1998; Pillay and Boulton-Lewis, 2000). Higher education, therefore, may influence the students' epistemological development. Several studies have confirmed this (Perry, 1981; King and Kitchener, 1994; Alexander and Dochy, 1995; Schommer, 1998).

The overall assumption made in this section, is that students display increasingly sophisticated levels of development as they go through university, and that their development

from one level to another arises as a result of their learning abilities (Hofer, 2001). Equally important is also the research evidence which indicates that if students conceive knowledge to be 'static', they will perceive learning as a process of accumulating information, whereas if students conceive knowledge to be 'flexible', they will see learning as meaningful and something to be discovered. This is an important point since it indicates that there is a relationship between epistemological conceptions about knowledge; conceptions of learning and academic performance (Hofer and Pintrich, 1997; Dweck and Leggett, 1988).

The Phenomenographic Perspective

From the above argument it follows that from a non-dualistic perspective, if the learner has come to experience a phenomenon in a more complex and meaningful way, a change is implied and learning has taken place. In other words, 'learning is a response to a student's conceptions, or way of experiencing his or her particular situation' (Lucas, 2000: 481). In the words of Ramsden, et al. (1993: 303), 'there is only one world to which we have access to – and that is, the world-as-experienced'. In other words, social phenomena exist not 'out there' but in the minds of the people and their interpretations (Robson, 2002). Student learning, therefore, lies within these experiences.

Following from this rationale the phenomenographic perspective of learning implies that people act according to their experience of the situation rather than to an 'objective reality', which is emphasized in the quantitative and positivist traditions (Watkins, 1996).

It also follows that conceptions about learning can be difficult to determine. Conceptions are not usually conscious beliefs which students could easily quantify. Thus, it is difficult for researchers to get a picture of conceptions using quantitative methods. By employing only standardised tools, as is often the characteristic of quantifiable data, quantitative research restricts experiences that are so crucial to conceptions. Standardisation results in converting the social world under study into an artificial world, which has nothing in common with the real world. Moreover, quantitative researchers look for the existence of a 'constant relationship' between events, which can be straightforward when dealing with the natural world. However, when people are the focus of the study this 'constant relationship' is so rare it may be even non-existent (Robson, 2002).

Furthermore, the aim of this particular study is not to emphasise causality or to seek to generalise results in numbers, but to explore how students see and experience their world of learning. Thus, a qualitative approach is required in order to see the world through the participants themselves, in this case the students.

It is within this framework that the phenomenographic approach is engaged in this study, aiming to identify variations in the experience of the phenomenon undertaken by a specific group of students. The paper makes an assumption that the students' conceptions or experiences of learning may influence the students' learning outcomes.

The Study

The research outlined in this paper aimed to identify and describe students' conceptions of learning within the undergraduate programmes in a university, Cyprus. More specifically, it aimed to develop an appreciation of how students in their initial courses conceive their learning

and how this affects their studies and finally and most importantly, how it may affect their learning outcomes.

Method

As already stated it is difficult for researchers to get a picture of students' conceptions of learning using quantitative methods. Consequently, this study has drawn from the constructivist philosophy and employed a phenomenographic approach as the underlying framework of methodology. The data collected provided a detailed conceptualisation of learning which could only have emerged by using interviews as a method, and specifically semi-structured interviews. By using this method, it is anticipated that a holistic rather than a disjointed understanding of the experiences of the students who participated will be obtained. The method used justified the small sample of participants engaged in the research which was made up of twelve students (five males and seven females). The students were all freshmen who had already taken or were studying one or more introductory Business courses.

In adopting a phenomenographic analysis several considerations had to be taken into account. First, the outcomes from such studies are based on the variation across all of the interview transcripts rather than of each participant. Thus, any one interview may contain more than one of the categories of description constituting the study (Ashwin, 2006). Second, the conceptions described represent a 'picture' of the experience of the participants at that particular time. Hence, the aim is not to classify or categorise any individual participant as having a particular perception, but rather to illustrate the full range of conceptions held by the group as a whole. Consequently, the categories that emerged described the range of the different ways in which this particular group illustrated their experiences. They formed descriptions of the 'dimensions of the experience' that make up the main aspects of the variation, and do not include dimensions for which there is little or no variation within the group (Trigwell, 2000).

Third, the aim is to compare each category in order to establish first, their suitability to a specified criterion and, second, the understanding they represented. This process provided an analysis of the categories of description in terms of the meaning of each category and its structural relationship to other categories. It is through 'this means that the variation of experience of learning within the student population may be captured' (Minasian-Batmanian, et al., 2003; Akerlind 2004; 2005). Thus the results could not be quantified in the form of numbers.

Rather, the final stage of the data analysis focused on the identification of both common and distinctive ways of experiencing learning by the students as a group (Lucas, 2000).

From the analysis of the data, a set of categories were developed and made up of six conceptions of learning. The findings of the study confirmed the results found by Marton and Saljo (1976a) and other researchers. Comparisons were then made between the categories.

Conceptions of Learning – The Findings

The study identified six categories of students' conceptions of learning. The categories were perceived as forming a kind of hierarchy, that is, each category included characteristics of the preceding conceptions (Byrne and Flood, 2004). Furthermore, most of the conceptions were linked with each other and therefore could not be viewed as independent of each other. The

following table (Table 1) provides a summary of the conceptions of learning as expressed by the students. It identifies each category in terms of its level, aim, orientation and learning activity.

Table 1. *The Levels of Conceptions: Aim, Orientation and Activity of Learning*

Levels of Conceptions	Aim of learning	Orientation of Learning	Learning Activity
<i>Lower-level Conceptions</i>	Category A: Receiving subject knowledge	<i>Subject-oriented</i>	<i>Lecturer-dependent</i>
	Category B: Receiving subject knowledge in a		
	Category C: Studying and memorising the subject knowledge with the aim of reproducing it at a future time		
	Category D: The lecturer as a role model in the process of learning		
<i>Higher-level Conceptions</i>	Category E: Learning through involvement and through understanding the subject knowledge	<i>Learning-oriented</i>	<i>Student-dependent</i>
	Category F: Learning as the self-development of student into responsible human being		

From the Table 1 it can be seen that the conceptions of students' learning fall into two distinct divisions, described in the study as: 'higher-level' and 'lower-level' categories. Categories A, B, C and D represented learning as subject-oriented/lecturer-dependent activities and were seen as mainly dualistic activities. More than half of the participants saw learning as primarily receiving subject knowledge directly from the lecturer with the aim of reproducing it in response to course assessment and exam requirements.

The overall conclusion for the categories A, B, C and D is that the student is seen as a passive follower relying on the lecturer, whose responsibility as an expert, is to hand down factual knowledge. In addition, the lecturer was seen as a role model in the process of learning.

Students holding Conceptions E and F, referred to in this study as 'learning orientated and student dependent' were found to take a more holistic view of learning. They viewed learning as centring on the concept of meaning or understanding. These categories convey a more constructive perception of learning (Van Rossum et al., 1985; Marton et al., 1993; Akerlind 2005). Categories E and F suggested a higher-level of thinking, focusing on learning outcomes as the exploration of meaning and the development of one's self. In other words, learning is undertaken for its own sake and students are apparently responsible for their own learning and advancement.

To conclude, the overall results of this study revealed that the majority of learning conceptions (A, B, C and D) of the Business students were mainly perceived as subject-oriented and lecturer-dependent, characterised as surface learning. There was clear evidence to suggest that students, on the whole, were highly syllabus-bound in their approaches to learning, and there was little recognition of the need to seek relationships between different aspects of the knowledge acquired. The findings suggested the subject knowledge, (irrespective of the discipline), was mainly seen as external to students - contained in notes and expressed primarily as passing examinations and obtaining qualifications. Students who perceived the final two

categories (E and F) as important part of learning, saw learning as an individualistic, self-determined and self-development/career-oriented process.

Research into the Relationship Between Conceptions of Learning/Approaches to Learning and Learning Outcomes

This section reviews the literature of the relationship between the conceptions of learning; approaches to learning and learning outcomes. Learning outcomes are examined by the level of student understanding of the concepts taught through the application of either deep or surface approaches to learning. This is because the influences that lead to a particular learning outcome are not always directly observable. According to Lucas and Meyer investigating and measuring learning outcomes should be seen as 'more of an art than a science' (2003a: 6). The qualitative methods of measuring student learning outcomes, (such as the 'deep understanding' of the subject), maybe considered better indicators of student learning, rather, than the quantitative methods of measuring (such as exam performance), (Ramsden, 2003).

Indeed, there is a well-established body of educational research which supports the debate that students' approaches to learning are related to their conceptions of learning and that the approaches adopted are linked to the quality of their learning outcomes (Ramsden, 2003).

The work by Dahlgren, (1984); Van Rossum and Schenk, (1984); Marton and Saljo (1976), showed the way over 25 years ago, when they gave an inclusive summary of these relationships. They explored the relationship between students' conceptions of learning, their approaches to learning, and their learning outcomes. Students using a surface approach never obtained more than a 'multi-structural' level of learning outcome, in which facts were presented in an unconnected manner. The students, on the other hand, using a deep approach reached the 'relational' level, in which ideas were presented as a coherent whole. They concluded that in order to arrive at a certain outcome, a particular approach to the learning activity must have been used.

Hence, the approach to a learning activity and the outcome of learning are joined in the overall experience and conceptions of learning. It could, therefore, be possible to identify the different learning conceptions of students over a particular topic within a subject (Bowden and Marton, 1998), that could be then be used to define their learning approaches and ultimately the quality of their learning outcomes and presumably academic achievement.

Furthermore, the students who viewed learning as understanding, linked to their own personal growth, showed that they wanted to appreciate, discover or gain meaning of the subject. These students, according to Marton et al., (1993), adopted a deep approach to learning. Similarly, pioneering studies by Dahlgren and Marton, (1978) conducted on the concept of 'price', found that students who used deep approaches had a deeper understanding of the concept of price. This result was concluded many times by different studies including the study on students' conceptions of mathematics conducted by Crawford, et al. (1998). In addition, the study by Purdie et al. (1996) of Japanese and Australian students' conceptions of learning and their use of self-regulated learning approaches verified similar outcomes. Results of more studies conducted by Zhang and Watkins (2001), Entwistle et al (2001) and Akerlind, (2005) outlined similar findings.

This was also confirmed by the Cypriot students. Students with conceptions E and F were found to aim for a complete understanding of the phenomenon in all their learning activities. From their descriptions it was discovered that they put emphasis on the 'whole meaning' of the learning task. From this, one can assume that the approaches to learning and the conceptions of learning of the students were linked.

What is clear from the study outlined in this paper is that some students had begun to see learning as a continuous journey where understanding their Business courses and understanding knowledge in general has a part to play in their overall development. Thus, there was a clear indication that students were beginning to shift their conceptions of learning from merely 'acquiring knowledge', to that of 'understanding knowledge' and were starting to appreciate the use of deep approaches to learning.

Surface learning approaches, on the other hand, have been connected with conceptions that the learning activities require rote learning of factual material (Entwistle and Ramsden, 1983; Trigwell and Prosser, 1991a; Prosser and Trigwell, 1999; Lizzio et al., 2002). Ramsden (2003), for example, indicated that many students that attained 'low level outcomes', tended to memorise large quantities of information that were soon forgotten. These studies clearly showed that students who intended to acquire more knowledge without spending time to explore and understand the course material that has been taught in class undoubtedly diminished their learning outcomes.

From the findings of the Cypriot study it has emerged that students with conceptions A, B, C and D (see Table 1) are adopting the surface approach to learning. Indeed, the analysis of their descriptions given in the interviews showed clearly that the students' main concern is concentrated on the quantity of knowledge and not in understanding knowledge. For example, a number of them stressed the importance of rote learning and memorisation through writing, rewriting, recording and reading over their notes several times. Once again, the students emphasised their reliance on the lecturer to provide them with the subject knowledge using well-structured methods. In particular, the Cypriot students indicated their preference for well-prepared notes, well-illustrated slides and the use of real-life examples. Learning was mainly perceived as receiving knowledge and this was, evidently, the responsibility of the lecturer.

Furthermore, the study by Jackling (2005) examined the relationships between the learning approach used and the quality of learning outcomes obtained, by using questions intended to examine the level of conceptual understanding. The results showed that deep approaches to learning were generally connected with more meaningful responses to questions related to course content, whereas, students with surface approaches showed a distinct lack of knowledge of the concepts that had been taught. Many studies have concluded that students who used the deep approach not only had a more complete understanding but were also able to recall more facts, (Akerlind, 2005). Snelgrove and Slater (2003) also found that students who used a deep approach were more successful in examinations than those who used a surface approach.

In addition, Prosser and Millar (1989) demonstrated that students with a deep approach to learning displayed a greater degree of conceptual change towards more sophisticated conceptions. Prosser and Millar maintained that in order to experience conceptual change, students have to actively participate in using a deep approach. Moreover, Marton and Booth concluded that 'learning in the sense of changing one's way of experiencing a phenomenon is contingent on one's approach to learning' (1997: 158). Chin and Brown (2000) provided further

evidence in their study of school students who were involved in science exercises. They found that those using a deep approach were more prepared to express their ideas, gave more extensive explanations, asked more sophisticated questions and engaged in more explicit theorising during the task.

The evidence, therefore, over many years of research indicates the presence of a strong correlation between conceptions of learning and approaches to learning, with students at the lower level end of the conceptions of learning tending towards a surface approach, and those at the higher level end tending to a deep approach. These results provided proof that there is indeed a link between these concepts of learning and the quality of student learning outcomes. From the existing literature and the outlined study, it would appear that a relationship does exist between a student's conceptions of learning and his/her learning outcomes and learning ability.

The importance of making both learners and teachers aware of the conceptions of learning cannot be underestimated (Watkins, 2001). It is not difficult then to understand how a student who comes to 'own' the knowledge through engaging with it personally and for its own sake, might be able to include what he/she has learnt into everyday life (Hodgeson, 1997).

Students' Conceptions of Learning: Implications for Lecturer Development and Curriculum/Syllabus Design

If we are serious in establishing a more student-centred curriculum, as is the aim of the Bologna Process, the need for educators to be aware of the experiences and conceptions every student brings to their learning environment becomes even more significant. The students we teach bring with them their own previous and personal learning experiences, some of which may have negative influences on their conceptions of learning and attitudes to study (Marton et al., 1993; Hettich, 1997). For a variety of reasons many students see higher education as a chore that they have to go through rather than something that could enhance their lives. However, as already mentioned above, such conceptions are far from been fixed and could and should change during their study at the University.

Therefore, making education more meaningful for students by purposely building educational experiences based on how students understand, conceive and experience knowledge including what students should be able to do with the knowledge, should be one of the aims of university teaching. Educational agencies promoting reform and change should recognise and understand the importance of students' conceptions of learning. For the majority of educators, this will require engaging with pedagogical issues and theories that might only have been of trivial importance in the traditional university. This brings to the fore issues regarding, first, the restructuring of the curriculum and, second, the training and development of lecturers.

Curriculum/Syllabus Design

As outlined in the Introduction of this paper, universities throughout Europe have begun to describe their course curriculum/syllabus not only in terms of inputs, such as teaching hours or text books, but also in terms of learning outputs (i.e. what students know, understand and can do after a process of learning) in the form of learning outcomes. Moreover, learning outcomes are seen as important tools in clarifying as well as evaluating the results of learning for the students and educators alike. Thus, an awareness of the conceptions of learning held by the students would be valuable to educators when structuring the course curriculum and

syllabus of their university. In doing so, educators may be able to design the curriculum in such a way as to promote deeper more constructivist approaches to learning and hence provide students with insights into how learning might occur. Such curriculum/syllabus designs may facilitate the achievement of desired high quality learning outcomes.

By creating curriculum designs that encourages more reactive and creative teaching strategies, hopefully, we can make students aware of the impact of learning on their education and lives in general. It may also be possible to assist the students with poor academic results to become better achievers by making them aware of the benefits of evolving to the higher level of conceptions. In the verses of William Butler Yeats (1865-1939), 'education is not the filling of the pail but the lighting of fire'. We, as educators should be involved in 'lighting the fire'.

Training and Development of Lecturers

Research has highlighted the important role conceptions play in the development of teaching practices and teaching methods. Indeed, many researchers advocated that change in teaching practice precedes change in student learning outcomes, which leads to change in teaching and learning conceptions and beliefs (Clarke and Hollingsworth, 2002). Gow, et al. (1992: 146) identified faculty development as an important part of their research on conceptions. They emphasise the significance of 'mak[ing] changes in line with the practitioner's conceptions'. Entwistle and Walker (2000) argued for faculty development which would support lecturers to develop more sophisticated conceptions of learning and teaching. Ho, et al. (2001) provided concrete evidence that conceptions can indeed lead to improvements in teaching strategies and eventually in student learning outcomes. In addition, Marton and Ramsden (1988) have suggested several teaching strategies that promote conceptual change in students. In this regard, every educator should aspire to Rogers' (1969) philosophy of creating a 'community of learners'.

Whilst there are no direct relationships between lecturer training and student learning outcomes there is an abundance of research linking teaching practices, learning conceptions and learning outcomes (Dunkin and Precians, 1992; Biggs, 1999; Kember and Kwan, 2000; Martin, et al., 2000; McAlpine and Weston, 2000; Trowler and Bamber, 2005). This leads us to the conclusion that if we wish lecturers to adopt 'student-centred' approaches to teaching and students to adopt meaningful 'learning-oriented' approaches to learning (Kember and Kwan, 2000), then it is important to direct lecturer development and training efforts towards engaging in teaching for understanding (Ho, 1998). An appreciation of university teaching is therefore incomplete without a consideration of the students and also lecturers' conceptions about learning and teaching and a systematic examination of the relationship between those conceptions and actual teaching practices.

In practice, this would mean investing in specific training programmes to tackle conceptions of both learning and teaching. Similarly, workshops and seminars can provide a good opportunity for 'conceptions and conceptions awareness-building'. Indeed, Bowden (1989) designed workshops, as far back as 22 years ago which focused on helping teachers to enable their teaching practices to match their intended learning outcomes for students. More recent researchers (Trowler and Bamber, 2005) attempted to change participants' conceptions of teaching and learning by increasing their awareness of the existence of other conceptions which were proved to be more helpful to better learning.

These arguments provide a good start to any future progress in both the curriculum design and lecturer training and development programmes. The conceptual change approach has been developed as a way of achieving real progress concerning students' learning outcomes in higher education, even though the actual task of changing such conceptions remains enormous.

Conclusion

This paper has set out to explore the impact student conceptions of learning could make on the quality of their learning outcomes. By using phenomenography as the main research method it was possible to identify how key concepts are understood by university students, and outlined the aspects derived by previous research, that may contribute to students gaining a deep understanding of learning; thus improving their learning outcomes (Stamouli and Huggard 2007).

Hence, the overall conclusion implies that if educators are to 'place learners at the heart of the learning process' (Edwards, 2001), then they should be able to provide students with the educational experiences that promote the realisation of high quality learning outcomes. Consequently, the paper explored the need to make students realise that learning in universities should involve the adoption of 'learning oriented' instead of 'teaching oriented' strategies that could contribute to their own personal development and which will eventually make a positive impact on their learning.

Furthermore, the data may provide educators with valuable insights that can be used both to review the quality of the current curricula and teaching methods and, by doing so, influence the development of both new curricula and teacher training programmes that may sway the attainment of desired high quality learning outcomes.

In summing up the paper suggests that the acknowledgement of the existence of students' conceptions of learning by academics, educators, and policy reformers, have the potential to influence, positively the way in which lecturers and students approach learning and thus influence the way students learn in HE.

References

- Alexander, P. A., & Dochy, F. (1995). Conceptions of knowledge and conceptions: A comparison across varying cultural and educational communities. *American Educational Research Journal*, 32(2), 413-442. <http://dx.doi.org/10.3102/00028312032002413>
- Akerlind, G. (2004). A new dimension to understanding university teaching. *Teaching in Higher Education*, 9(3), 363-375. <http://dx.doi.org/10.1080/1356251042000216679>
- Åkerlind, G. S. (2005). Variation and commonality in phenomenographic research methods. *Higher Education Research and Development*, 24(4), 321-334. <http://dx.doi.org/10.1080/07294360500284672>
- Biggs, J. (1990). Teaching design for learning. Paper presented at the Annual Conference of the *Higher Education Research and Development Society of Australia*, Griffith University, Brisbane.
- Biggs, J. (1999). *Teaching for quality learning at university*. Buckingham: Society for Research in Higher Education and Open University Press.
- Bologna Process of the EU - Joint Declaration of the European Ministers. (1999, June 19).
- Boulton-Lewis, G. (1995) The SOLO taxonomy as a means of shaping and assessing learning in higher education. *Higher Education Research and Development*, 14(2), 143-154. <http://dx.doi.org/10.1080/0729436950140201>
- Bowden, J. & Marton, F. (1998). *The University of Learning*. London, UK: Kogan Page.

- Bowden, J. A. (1989). Curriculum development for conceptual change learning: A phenomenographic pedagogy. Paper presented at the Sixth Annual Conference of the Hong Kong Educational Research Association, Hong Kong.
- Buelens, H., Clement, M. (2002). University assistants' conceptions of knowledge, learning and instruction. *Research in Education*, 67(1), 44-57. <http://dx.doi.org/10.7227/RIE.67.5>
- Byrne, M., Flood, B., & Willis, P. (2002). The relationship between learning approaches and learning outcomes: A study of Irish accounting students. *Accounting Education: An international journal*, 11(1), 27-42. <http://dx.doi.org/10.1080/09639280210153254>
- Cano, F., (2005). Epistemological beliefs and approaches to learning: Their change through secondary school and their influence on academic performance. *British Journal of Educational Psychology*, 75(2), 203-221. <http://dx.doi.org/10.1348/000709904X22683>
- Cantwell, R. H., & Scevak, J. J. (2004). Engaging university learning: The experiences of students entering university via recognition of prior industrial experience. *Higher Education Research & Development*, 23(2), 131-145. <http://dx.doi.org/10.1080/0729436042000206627>
- Chin, C., & Brown, D. E. (2000). Learning in science: A comparison of deep and surface approaches. *Journal of Research in Science Teaching*, 37(2), 109-138. [http://dx.doi.org/10.1002/\(SICI\)1098-2736\(200002\)37:2<109::AID-TEA3>3.0.CO;2-7](http://dx.doi.org/10.1002/(SICI)1098-2736(200002)37:2<109::AID-TEA3>3.0.CO;2-7)
- Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education*, 18(8), 947-967. [http://dx.doi.org/10.1016/S0742-051X\(02\)00053-7](http://dx.doi.org/10.1016/S0742-051X(02)00053-7)
- Crawford, K., Gordon, S., Nichols, J., & Prosser, M. (1998). University students' conceptions of mathematics. *Studies in Higher Education*, 23(1), 87-94. <http://dx.doi.org/10.1080/03075079812331380512>
- Dahlgren, L., & Marton, F. (1978). Students' conceptions of subject matter: An aspect of learning and teaching in higher education. *Studies in Higher Education*, 3(1), 25-35. <http://dx.doi.org/10.1080/03075077812331376316>
- Dahlgren, L. O. (1984). Outcomes of learning. In F. Marton, D. Hounsell, & N. J. Entwistle (Eds.), *The experience of learning* (pp. 19-35). Edinburgh: Scottish Academic Press.
- Driver, R., Asoko, H., Leach, J., Mortimer, E., & Scott, P. (1994). Constructing scientific knowledge in the classroom. *Educational Researcher*, 23(7), 5-12. <http://dx.doi.org/10.3102/0013189X023007005>
- Dunkin, M. J., & Precians, R. P. (1992). Award-winning university teachers' concepts of teaching. *Higher Education*, 24(2), 483-502. <http://dx.doi.org/10.1007/BF00137244>
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256-273. <http://dx.doi.org/10.1037/0033-295X.95.2.256>
- Edwards, R. (2001). Meeting individual learner needs: power, subject, subjection. In C. Paechter, M. Preedy, D. Scott, & J. Soler (Eds.), *Knowledge, power and learning*. London, UK: SAGE.
- English, L., Luckett, P., Mladenovic, R. (2004). Encouraging a deep approach to learning through curriculum design. *Accounting Education: An International Journal*, 13(4), 461-488. <http://dx.doi.org/10.1080/0963928042000306828>
- Entwistle, N. (1997). *Contrasting perspectives on learning*. In F. Marton, D. Hounsell, & N. Entwistle (Eds.), *The experience of learning* (2nd ed.) (pp. 3-22). Edinburgh: Scottish Academic Press.
- Entwistle, N. & Ramsden, P. (1983). *Understanding student learning*. London, UK: Croom Helm.
- Entwistle, N., Skinner, D., Entwistle, D., & Orr, S. (2000). Conceptions and beliefs about 'good teaching': An integration of contrasting research areas. *Higher Education Research and Development* 19(1), 19-26. <http://dx.doi.org/10.1080/07294360050020444>
- Entwistle, N., & Walker, P. (2000). Strategic alertness and expanded awareness within sophisticated conceptions of teaching. *Instructional Science*, 28(2), 335-361. <http://dx.doi.org/10.1023/A:1026579005505>
- Freeman, D., & Richards, J. C. (1993). Conceptions of teaching and the education of second language teachers. *TESOL Quarterly*, 27(2), 193-216. <http://dx.doi.org/10.2307/3587143>
- Gow, L., Kember, D., & Sivan, A. (1992). Lecturers' views of their teaching practices: Implications for staff development needs. *Higher Education Research and Development*, 11(2), 135-149. <http://dx.doi.org/10.1080/0729436920110203>
- Gunstone, R. F. (1991). Constructivism and metacognition: Theoretical issues and classroom studies. In R. Duit, F. Goldberg, & H. Niedderer (Eds.), *Research in physics learning: Theoretical issues and empirical studies* (pp. 129-140). Bremen: IPN.

-
- Hettich, P. (1997). *Epistemological approaches to cognitive development in college students*. In P. Sutherland (Ed.), *Adult learning: A reader*. London, UK: Kogan Page.
- Hewson, P. W. (1996). Teaching for conceptual change. In D. F. Treagust, R. Duit, & B. J. Fraser (Eds.), *Improving teaching and learning in science and mathematics* (pp. 131-140). New York, NY: Teachers College Press.
- Ho, A. S. P. (1998). A conceptual change staff development programme: Effects as perceived by participants. *International Journal for Academic Development*, 3(1), 24-38. <http://dx.doi.org/10.1080/1360144980030105>
- Ho, A., Watkins, D., & Kelly, M. (2001). The conceptual change approach to improving teaching and learning: An evaluation of a Hong Kong staff development programme. *Higher Education*, 42(2), 143-169. <http://dx.doi.org/10.1023/A:1017546216800>
- Hodgeson, V. (1997). Lectures and the experience of relevance. In F. Marton, D. Hounsell, & N. Entwistle (Eds.), *The experience of learning. Implications for teaching and studying in higher education*. Edinburgh: Scottish Academic Press.
- Hofer, B. K. (2001). Personal epistemology research: Implications for learning and teaching. *Educational Psychology Review*, 13(4), 353-383. <http://dx.doi.org/10.1023/A:1011965830686>
- Hofer, B. K., & Pintrich, P. R. (1997). The development of epistemological theories: Conceptions about knowledge and knowing and their relation to learning. *Review of Educational Research*, 67(1), 88-140. <http://dx.doi.org/10.3102/00346543067001088>
- Hounsell, D. (1997) *Understanding teaching and teaching for understanding*. In F. Marton, D. Hounsell, & N. Entwistle (Eds.), *The experience of learning. Implications for Teaching and Studying in Higher Education*. Edinburgh: Scottish Academic Press.
- Jackling, B. (2005). Perceptions of the learning context and learning approaches: Implications for quality learning outcomes in accounting. *Accounting Education: An International Journal*, 14(3), 271-291. <http://dx.doi.org/10.1080/06939280500036364>
- Kember, D., & Kwan, K. P. (2000). Lecturers' approaches to their teaching and their relationship to conceptions of good teaching. *Instructional Science*, 28(5), 469-490. <http://dx.doi.org/10.1023/A:1026569608656>
- King, P. M., & Kitchener, K. S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults*. San Francisco, CA: Jossey-Bass.
- Knefelkamp, L. (1999). *Forms of intellectual and ethical development in the college years: A scheme*. San Francisco, CA: Jossey-Bass.
- Lizzio, A., Wilson, K., & Simons, R. (2002). University students' conceptions of the learning environment and academic outcomes: implications for theory and practice. *Studies in Higher Education*, 27(1), 27-52. <http://dx.doi.org/10.1080/03075070120099359>
- Lucas, U. (2000). Worlds apart: Students' experiences of learning introductory accounting. *Critical Perspectives on Accounting*, 11(4), 479-504. <http://dx.doi.org/10.1006/cpac.1999.0390>
- Lucas, U., & Meyer, J. H. F. (2003, August). Understanding students' conceptions of learning and subject in 'introductory' courses: The case of introductory accounting. Study presented at the *Symposium Meta Learning in Higher Education: Taking Account of the Student Perspective*, Padova.
- Martin, E., Prosser, M., Trigwell, K., Ramsden, P., & Benjamin, J. (2000). What university teachers teach and how they teach it. *Instructional Science*, 28(5), 387-412. <http://dx.doi.org/10.1023/A:1026559912774>
- Marton, F., & Booth, S. (1997). *Learning and awareness*. Mahwah, NJ: Lawrence Erlbaum.
- Marton, F., Dall'Alba, G., & Beaty, E. (1993). Conceptions of learning. *International Journal of Educational Research*, 19(3), 277-300.
- Marton, F., & Ramsden, P. (1988). What does it take to improve learning? In F. Marton, D. Hounsell & N. Entwistle (Eds.), *The experience of learning, implications for teaching and studying in higher education*. Edinburgh: Scottish Academic Press.
- Marton, F., & Saljo, R. (1976a). On qualitative differences in learning I: Outcome and process. *British Journal of Educational Psychology*, 46(1), 4-11. <http://dx.doi.org/10.1111/j.2044-8279.1976.tb02980.x>
- Marton, F., & Saljo, R. (1976b). On qualitative differences in learning II: Outcome as a function of the learner's conception of the task. *British Journal of Educational Psychology*, 46(2), 115-127. <http://dx.doi.org/10.1111/j.2044-8279.1976.tb02304.x>
- Marton, F., & Saljo, R. (1997). Approaches to learning. In F. Marton, D. J. Hounsell, & N. J. Entwistle (Eds.), *The experience of learning*. (2nd ed.) (pp. 39-58). Edinburgh: Scottish Academic Press.
- McAlpine, L., & Weston, C. (2000). Reflection: Issues related to improving professors' teaching and students'. *Learning. Instructional Science*, 28(5), 363-385. <http://dx.doi.org/10.1023/A:1026583208230>
-

- Moore, W. S. (1989, November). The "Learning Environment Preferences": Exploring the construct validity of an objective measure of the Perry scheme of intellectual development. *Journal of College Student Development*, 30, 504-514.
- Moore, W. S. (1991). *The Perry scheme of intellectual and ethical development: An introduction to the model and major assessment approaches*. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago.
- Morgan, A., Taylor, E., & Gibbs, G. (1980). *Students' approaches to studying the Social Science and technology foundation courses: Preliminary studies* [Study Methods Group Report No. 4]. Milton Keynes: Open University, Institute of Educational Technology. (ERIC Document Reproduction Service No. ED197639)
- Norton, L. S. & Crowley, C. M. (1995). Can students be helped to learn how to learn? An evaluation of an Approaches to Learning programme for first year degree students. *Higher Education*, 29(3), 307-328. <http://dx.doi.org/10.1007/BF01384496>
- Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years*. New York, NY: Holt, Reinhart and Winston.
- Perry, W. G. (1981). *Cognitive and ethical growth: The making of meaning*. In A. W. Chickering (Ed.), *The modern American college* (pp. 76-116). San Francisco, CA: Jossey-Bass.
- Piaget, J. (1977). *Equilibration of cognitive structures*. New York, NY: Viking
- Pillay, H., & Boulton-Lewis, G. (2000). Variations in conceptions of learning in construction technology: implications for learning. *Journal of Education and Work*, 13(2), 163-81. <http://dx.doi.org/10.1080/713676984>
- Pillay, H., Brownlee, J., & McCrindle, A. (1998). The influence of individuals' conceptions about learning and nature of knowledge on educating a competent workforce. *British Journal of Education and Work*, 11(3), 239-254. <http://dx.doi.org/10.1080/1363908980110302>
- Pratt, D. D. (1992). Conceptions of teaching. *Adult Education Quarterly*, 42(4), 203-220. (ERIC Document Reproduction Service No. EJ446787)
- Prosser, M., & K. Trigwell (1999). *Understanding learning and teaching*. Buckingham: Society for Research into Higher Education, Open University Press.
- Prosser, M., & Millar, R. (1989). The "how" and "why" of learning physics. *European Journal of Psychology of Education*, 4(4), 513-528. <http://dx.doi.org/10.1007/BF03172714>
- Purdie, N., J. Hattie, and Douglas (1996). Student conceptions of learning and their use of self-regulated learning strategies: A cross-cultural comparison. *Journal of Educational Psychology*, 88(1), 87-100. <http://dx.doi.org/10.1037/0022-0663.88.1.87>
- Ramsden, P. (1987). Improving teaching and learning in Higher Education: the case for a relational perspective. *Studies in Higher Education*, 12(3), 275-286. <http://dx.doi.org/10.1080/03075078712331378062>
- Ramsden, P. (1992). *Learning to teach in higher education*. New York, UK: Routledge. <http://dx.doi.org/10.4324/9780203413937>
- Ramsden, P. (2003). *Learning to teach in higher education* (2nd ed.). New York, NY: Routledge.
- Ramsden, P., Beswick, D. and Bowden, J. A. (1986). Effects of learning skills interventions on first year university students' learning. *Human Learning*, 5(3), 151-164.
- Ramsden, P., Masters, G. N., Stephanou, A., Walsh, E., Martin, E., Laurillard, D., & Marton, F. (1993). Phenomenographic research and the measurement of understanding: an investigation of students' conceptions of speed, distance, and time. *International Journal of Educational Research and Development in Higher Education*, 19(3), 301-316.
- Richardson, J. T. E. (1994). Cultural specificity of approaches to studying in higher education: A literature survey. *Higher Education*, 27(4), 449-468. <http://dx.doi.org/10.1007/bf01384904>
- Robertson, C. (2001). What's the outcome? *LINK* 2, October. LTSN for Hospitality, Leisure, Sport and Tourism.
- Robson, C. (2002). *Real world research* (2nd ed.). Oxford, UK: Blackwell.
- Rogers, C. R. (1969). *Freedom to Learn*. Columbus, OH: Merrill.
- Ryan, M. P. (1984). Conceptions of prose coherence: Individual differences in epistemological standards. *Journal Educational Psychology*, 76(6), 1226-1238. <http://dx.doi.org/10.1037/0022-0663.76.6.1226>
- Saljo, R. (1979). *Learning in the learner's perspective: Some common-sense conceptions* (Vol. I) (Report No. 76). Gothenburg, Sweden: Department of Education, University of Gothenburg. (ERIC Document Reproduction Service No. ED173369)

-
- Schommer, M. (1990). Effects of beliefs about the nature of knowledge on comprehension. *Journal of Educational Psychology*, 82(3), 498-504. <http://dx.doi.org/10.1037/0022-0663.82.3.498>
- Schommer, M. (1998). The influence of age and education on epistemological conceptions. *British Journal of Educational Psychology*, 68(4), 551-562. <http://dx.doi.org/10.1111/j.2044-8279.1998.tb01311.x>
- Sharma, D. S. (1997). Accounting students' learning conceptions approaches to learning, and the influence of the learning-teaching context on approaches to learning. *Accounting Education: An international journal*, 6(2), 125-146. <http://dx.doi.org/10.1080/096392897331532>
- Shuell, T. J. (1986). Cognitive conceptions of learning. *Review of Educational Research*, 56(4), 411-436. <http://dx.doi.org/10.3102/00346543056004411>
- Snelgrove, S., & Slater, J. (2003). Approaches to learning: Psychometric testing of a study process questionnaire. *Journal of Advanced Nursing*, 43(5), 496-505. <http://dx.doi.org/10.1046/j.1365-2648.2003.02747.x>
- Stamouli, I., & Huggard, M. (2007). Phenomenography as a tool as for understanding our students. In *Proceedings of the International Symposium for Engineering Education, ISEE-07* (pp. 181-186). Dublin, Ireland: Dublin City University.
- Svensson, L. (1977). On qualitative differences in learning: III—Study skill and learning. *British Journal of Educational Psychology*, 47(3), 233-243. <http://dx.doi.org/10.1111/j.2044-8279.1977.tb02352.x>
- Trigwell, K. (1995). Increasing faculty understanding of teaching. In W. A. Wright (Ed.), *Teaching improvement practices: Successful faculty development strategies* (76-100). Bolton, MA: Anker.
- Trigwell, K., & P. Ashwin (2006). An exploratory study of situated conceptions of learning and learning environments. *Higher Education*, 51(2), 243-258. <http://dx.doi.org/10.1007/s10734-004-6387-4>
- Trigwell, K., & Prosser, M. (1991). Improving the quality of student learning: The influence of learning context and student approaches to learning on learning outcomes. *Higher Education*, 22(3), 251-266. <http://dx.doi.org/10.1007/BF00132290>
- Trowler, P., & Bamber, R. (2005). Compulsory higher education teacher training: Joined-up policies, institutional architectures and enhancement cultures. *International Journal for Academic Development*, 10(2), 79-93. <http://dx.doi.org/10.1080/13601440500281708>
- Van Rossum, E. J., Deikers, R., & Hamer, R. (1985). Students' learning conceptions and their interpretation of significant educational concepts. *Higher Education*, 14(6), 617-641. <http://dx.doi.org/10.1007/BF00136501>
- Van Rossum, E. J., & Taylor, I. P. (1987). The relationship between conceptions of learning and good teaching: a scheme of cognitive development. Paper presented at the *AERA Annual Meeting*, Washington.
- Van Rossum, E. J., & Schenk, S. M. (1984). The relationship between learning conception, study strategy and learning outcome. *British Journal of Educational Psychology*, 54(1), 73-83. <http://dx.doi.org/10.1111/j.2044-8279.1984.tb00846.x>
- Varnava-Marouchou, D. (2007). *Teaching and Learning in an Undergraduate Business Context: An Inquiry into Lecturers' Conceptions of Teaching and their Students' Conceptions of Learning* (Unpublished doctoral dissertation). University of Nottingham, UK.
- Watkins, D. (1996). *Learning theories and approaches to research: a cross-cultural perspective*. In D. A. Watkins & J. B. Biggs (Eds), *The Chinese learner: Cultural, psychological and contextual influences* (pp. 3-24). Hong Kong: CERC, ACER.
- Watkins, D. (2001). Correlates of approaches to learning: A cross-cultural meta-analysis. In R. J. Stemberg & L. Zhang (Eds.), *Perspectives on thinking, learning, and cognitive styles* (pp. 165-196). London: Lawrence Erlbaum Associates.
- Watkins, D., & Hattie, J. (1981). The learning processes of Australian university students: Investigations of contextual and personological factors. *British Journal of Educational Psychology*, 51(3), 384-393. <http://dx.doi.org/10.1111/j.2044-8279.1981.tb02494.x>
- Watson, P. (2002). The role and integration of learning outcomes into the educational process. *Active Learning in Higher Education*, 3(3), 205-219. <http://dx.doi.org/10.1177/1469787402003003002>
- Yeats W. B. (1865-1939). *Famous quotes>William Butler Yeats*. Retrieved from <http://www.yuni.com/quotes/yeats.html>
- Zhang, I. E., & Watkins, D. (2001). Cognitive development and student approaches to learning: An investigation of Perry's theory with Chinese and U.S university students. *Higher Education*, 41(3), 239-261. <http://dx.doi.org/10.1023/A:1004151226395>
-