

RECENT TRENDS AT HIGHER EDUCATION EMPHASIZING ACTIVE COOPERATIVE LEARNING METHODS INVOLVING INDIVIDUAL LEARNING STYLES

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Abstract

“Higher education”, in general, is known to have a three-legged mission: “teaching”, “research”, and “community service”. Particularly since the Industrial Revolution, the rapid developments in technological movements and the noticeably frequent changes in social and industrial life seem to have brought about fundamental impacts on the mission of higher education. The recent trends have emphasized a kind of interdisciplinary flexibility in the cognitive world of higher education and eventually imposed a shift from theory to practice, from specific to general, from subject-based to vocation-based and from general educational aims to general transferable skills. On the other hand, those who teach at universities are mostly unaware of the developments in the literature of cognitive and educational psychology. The purpose of this study is to discuss how to improve teaching at higher education considering what makes higher education “higher”; why educational aid for academicians, why active and cooperative learning, and how to involve individual learning styles. It also includes the results of a survey, pioneering research on “individual learning styles” at maritime education, conducted quite recently at Dokuz Eylül University Maritime Faculty. This study is hoped to shine a light on the importance of making better use of individual learning styles and active cooperative learning offered by cognitive and educational psychology.

Key words: Higher education, recent trends, active cooperative learning, individual learning styles.

ÖZET

Genelde yüksek öğretimin “öğretim”, “araştırma” ve “toplum hizmeti” şeklinde üçlü bir misyonu bulunduğu bilinmektedir. Özellikle Sanayi Devrimi’nden bu yana, teknolojideki hızlı gelişmelerde sosyal ve endüstriyel yaşamdaki değişimlerin yüksek öğretim misyonu üzerinde köklü etkilere yol açtığı görülmektedir. Son eğilimler, yüksek öğretimin bilişsel dünyasında bir tür disiplinlerarası esnekliği vurgulamakta ve genel eğitsel amaçlardan genel transfer edilebilir becerilere yönelişi işaret etmektedir. Öte yandan, üniversitelerde eğitim-öğretim hizmeti sunan öğretim elemanlarının çoğunlukla bilişsel ve eğitim psikolojisindeki gelişmelerden haberdar olmadıkları görülmektedir. Bu çalışmanın amacı, yüksek öğretimi “yüksek” yapan özellikler, öğretim elemanlarına eğitsel yardım sağlamanın nedenleri, aktif ve işbirlikli öğrenme ve eğitim-öğretim etkinliklerinde bireysel öğrenme stillerinin dikkate alınması açısından yüksek öğretimde eğitim-öğretimi geliştirme yollarını tartışmaktır. Ayrıca, DEU Denizcilik Fakültesi’nde son günlerde yapılan “bireysel öğrenme stilleri” konulu denizcilik eğitiminde öncü bir araştırmanın sonuçları da özetlenmektedir. Bu çalışmanın, yüksek öğretimde bilişsel ve eğitim psikolojisince önerilen bireysel öğrenme stilleriyle işbirlikli aktif öğrenme yöntemlerinden daha çok yararlanmanın önemine dikkat çekmesi umulmaktadır.

Anahtar sözcükler: Yüksek öğretim, son eğilimler, işbirlikli / aktif öğrenme, bireysel öğrenme stilleri.

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1. INTRODUCTION

The term ‘universitas’ is originally said to have referred to “the self government of students or masters or both in the conduct of the affairs” of their institution of higher learning rather than the university as a place where all scholars could gather and work together (Barnett, 1992:91). What could be drawn from this reference is that everyone in this gathering has the opportunity to express his/her point of view both within his/her own disciplinary field and on the academic matters of general interest. Besides, related with this definition, institutions of higher education have ever been associations of individuals who have come voluntarily to study and learn together. Another point implied by this original definition is ‘the same sense that at the heart of higher education is the student, and neither institutions nor teaching staff are necessary for higher education to take place (Barnett, 1992:11, 31)

Universities are thought to function in two interrelated fields: teaching and research (Kelly, 1995:120). According to Duke (1992:41), “community services” should be considered to be a third function to be carried out by higher education. There presently seems to have been two distinctive approaches to higher education: External and Internal. The former, which is thought to neglect the educational experience of students and focus on the quantity of desired inputs and outputs, is based on four dominant concepts which consider higher education as the production of qualified man-power, training for a research career, the efficient management of teaching provision and a matter of extending life chances (Barnett, 1992:18-20). In all these four conceptions, higher education is taken as a total system, in which students enter as inputs, are processed, and emerge as outputs. The internal approach, the immediate concern of which is said to be the “educative processes and students’ development, comprises such views as the development of the individual student’s autonomy, the formation of general intellectual abilities and perspectives, the enhancement of the individual student’s personal character, and the developing competence to participate in a critical commentary on the host society, e.g. sustaining an oppositional function for higher education. “ In contrast to the first group of four, the immediate concern of this group is with the educational processes that students undergo, not with inputs and outputs and their relationships" (Barnett, 1992:21)

Particularly since the industrial revolution (for at least 150 years) there have been two distinct points of view regarding the basic functions of higher education. The starting point of higher education should be the world “in which its graduates will find themselves as professionals developing their careers” according to one of these views. The other view, on the other hand, emphasizes “the theoretical and conceptual structures of academic disciplines” as the point of departure (Barnett, 1992:162)

The view that “universities should be places for the pursuit of knowledge for its own sake “is believed to have eroded in recent times, “for there has been massive shift in recent years in the curriculum of higher education towards a utilitarian and vocational emphasis” (Kelly, 1995:119). This shift is thought to have been characterized by a rejection of the notion of education, “the means by which humans deal critically and creatively with reality and discover how to participate in the transformation of their world” (Marker, 2000:137), “a concern to encourage people to compete rather than to collaborate, and “a corresponding

stress on the short-term expedient” (Kelly, 1995:124). Besides, this shift is believed to have kept the educational goal away from “the humanities and critical thinking toward incorporating “appropriate” work place behaviors and so called traditional values” (Hursh, Goldstein and Griffith, 2000:191). Further concerns about the likely results of such a shift could be briefed as follows: Turning the slogan “Investment in people” towards potential economic units rather than as individual human beings; promoting the idea that all things are to be evaluated in terms of what might be of long-term intrinsic value; offering a form of education not concerned with the development of critical capacities in the learner and thus leaving society in a real sense without its capacity to think; and threatening the maintenance of higher education characterized by academic freedom and autonomy, “especially unaffordable luxury” (Kelly, 1995:125-129).

“The conflict between schooling for economic productivity and schooling for critical, informed citizenry has raged throughout the twentieth century, but the above briefed concerns about the shift towards vocational training do not mean to over look the importance of vocational emphasis. Although education is believed to “prepare students for both work and citizenship” (Hursh and Ross, 2000:273), what has been objected to is “making students’ interests sub servient to those of business” and the kind of vocational education favoured “is not one which will adapt workers to existing industrial regime... But one which will alter the existing industrial system and ultimately transform it” (Hursh and Ross, 2000:3). In other words, what is required from the graduates of higher education “in which the language of knowing is central but which is also a home for the language of doing” is “to be able to make their way in a changing world, with its unforeseen patterns of demand and expectation” (Barnett, 1992:153-154).

2. WHAT MAKES HIGHER EDUCATION “HIGHER”?

What higher education is *not* could be highlighted in such brief phrases as “merely additional education”, “simply more of what has gone before”, “a narrow acquisition of pure knowledge”, “development only in the student’s acquisition of subject-specific or even profession-specific knowledge and skills” and “acquisition of low level facts and information” (Barnett, 1992:17,25,26). From a wide perspective, higher education is said to be the highest part of education system in terms of student progression, to advance students to the frontiers of knowledge and to impart the deepest understanding in the mind of the students. Besides, it is said to involve “higher order” concepts and perspectives as could be inferred from such statements borrowed from Plato and Newman as “the acquisition of true understanding is one of ascending above conventional understanding... not in the sense of rising above the clouds and becoming cut off from the earlier viewpoint, but of being able to look down on what earlier viewpoint, to impart a perspective on the viewpoint itself” (Barnett, 1992:25-26). Another point underlined by Guttman (1999:184) sheds further lights on “... universities that try to establish an environment conducive to creating knowledge that is not immediately useful, appreciating ideas that are not presently popular and rewarding people who are-and are likely to be intellectually but not necessarily economically productive.”

The main points making higher education “higher” are précised as follows: Producing reflective practitioners who take seriously the critical view points of others and get prepared

to be self-aware and self-evaluative: who embark on metacognition and climb to higher levels of thought and who acquire the intellectual autonomy through a combination of higher order thinking and higher order cognitive abilities. In order to achieve a higher level of understanding- and ultimately of action, the notions of critical dialogue, of self-reflection, of conversation, and of continuing redefinition are believed to get acquired. This would mean the inevitable acquisition of the ability to analyse an argument, to examine evidence, to integrate material from contrasting sources and perspectives and to draw different kinds of inferences (Barnett, 1992:27-29).

3. WHY EDUCATIONAL AID FOR ACADEMICS?

When interviewed by Liberato Cardellini, Richard M. Felder, Hoechst Cleanese, Professor Emeritus of chemical engineering at North Caroline State University, admitted that he had been teaching for about 15 years when he first became aware that something was wrong with his teaching, “it dawned on him that no one had ever taught him anything about how to teach” and then he started looking into the literature of cognitive and educational psychology “to see if these folks could tell him anything about...” effective teaching (Cardellini, 2002:62-65). Like Felder, most of the instructors at higher education are likely to suffer from the lack of advisory support from cognitive and educational psychology. Therefore, it wouldn't be overstating that they have no other chance than teaching in the same manner as they have been taught. The result would be obvious, in Felder's words “... When all I did was prepare and deliver lectures and respond to questions, I was learning the material at a far deeper level than I knew it before, but the students were not learning much of anything.”

The quality in higher education is said to require that “the character and the complexity of the educative tasks should remain central” and so does the belief that “the quality of higher education is more demonstrated in the nature of the intellectual development... in the depth and breath of understanding that students achieve... to apply that understanding and self-critical capacity to all they experience and do” (Barnett, 1992:11-16). In meeting this requirement, Barnett attracts attention to the areas in which general principles can be drawn out course design, course delivery, and course evaluation. In designing a course, “we need to remind ourselves that a course makes sense if only it makes sense to students.” On course deliveries, the teaching methods should be such as to promote students' personal insights into concepts and frameworks of the subjects studied. The methods should also enable the students to be self-sufficient. Students' learning should be accompanied by an encouragement to form their own judgment or views... Students should be responsible for their own learning. Barnett also underlines that “the educator has to have both specific aims of the programme of studies in mind and the general purposes of higher education”

The instructors teaching at higher education could be provided with help concerning certain effective teaching/learning strategies involving cognitive and metacognitive issues. They could be informed about the pros and cons of various forms of “discovery learning” and “expository teaching”. Provided with such basic information about the teaching/learning methods, they could contribute to raising the quality in higher education and thus fulfilling the basic mission.

Such educational support could be provided either through an internal organization conducted by an advisor from the nearest faculty of education or an arrangement within the academic unit in question. The details of such organization would vary depending upon the specific facilities available at the to-be-supported unit. In terms of the latter choice, an arrangement within the academic unit in question, for example, some of the alternatives proposed are “research activities”, “course monitoring and review”, “staff development”, and “learning week” (Barnett, 1992:141-146). In the first activity, staff might be encouraged to undertake research into their own teaching activities. Besides, teaching staff - either by themselves or in collaboration with a central unit in the institution – could conduct research would evaluate the teaching methods practiced and would prompt those involved to take measures accordingly. In the second, the course team could be required to give a statement of its “philosophy” in relation to the student experience, e.g. how interactive are lectures?, what opportunities for independent learning are there?, are students encouraged to work in groups? and the like. In the third, “the staffs of the whole institutions are encouraged to experiment for a week with a completely new teaching method for one of their classes... The particularly interesting or innovative teaching experiments would also be publicized for other colleagues to adapt to their own circumstances.”

4. WHY ACTIVE AND COLLABORATIVE LEARNING?

The fundamental points making higher education “higher” imply that all programs of study in higher education are to some extent under the control of the student, who has to develop beyond a relatively passive assimilation of a curriculum and become an active partner in it (Barnett, 1992-41). This is a must “if the personal autonomy implicit in higher education is to be realized.” That’s why “the focus of university teaching is shifting away from the corpus of knowledge in favor of the process of learning and hence a new look is said to have emerged embracing a more student-centered ideology and incorporating mechanisms for developing intellectual skills and analytical competence” (Evans and Abbott, 1998:46). Keeping in mind that one of the fundamental aims of higher education is to enable students to learn “how to view the world in all its aspects from a questioning perspective” and also that “much scientific and technological advance has been facilitated by falsification rather than verification” (Kelly, 1995:92), the focus of higher education is to develop certain intellectual capacities, in particular “the capacity to challenge the assertions of others.” Besides, as Rugarcia et al (2000:6) underline, it will never be possible to teach... students everything they will be required to know, they could be helped to integrate knowledge across courses and disciplines and equipped with lifelong learning skills, “which would bring about” a continuing process of challenge and questioning, and which would give them “some control over their own destinies and offer them empowerment,” (Kelly, 1995:93). Furthermore, a significant part of the responsibility of higher education is said to be move the students “from dependent stance to being independent learners, and to help them “go beyond independent learning to interdependent learning,” (Rugarcia et al, 2000:7). Moving from independent learning to interdependent learning points to collaborative learning, which “refers to interactive learning groups in higher education, form structured to unstructured,” (Barkley, Cross and Major, 2005:7). This particular type of learning is thought to provide a learning environment wherein “the goals of the separate individuals are so linked together that there is a positive correlation among their goal attainments” rather than a competitive social situation where “there is a

negative correlation among their goal attainments” or an individualistic social situation wherein “there is no correlation among the goal attainments of the participants” (Pressley and McCormic, 1995:94).

5. WHY INDIVIDUAL LEARNING STYLES?

Learning style is “a combination of affective, cognitive, environmental and physiological responses that characterize how a person learns and the way each learner begins to concentrate, process and retain new and difficult information” (Larkin and Budny, 2004:3). In Felder’s terms, learning styles are “the ways that students characteristically take in and process new information” (Cardellini, 2002:4).

The main functions higher education is held responsible to carry out and the basic requirements that make higher education “higher” in mind, “it is now time to pose two complementary questions: How do students learn? and “how can we help students to learn more effectively?” (Brown and Attinks, 1994:151). In this respect, two basic approaches are thought to be considered: student-specific characteristics and task-specific characteristics (Laurillard, 1993:31). While the latter covers conceptions, reasoning processes and representational skills, student-specific characteristics are said to involve motivation, approach to study, epistemological beliefs and intellectual development. Regarding this particular group of statistics, “the dimensions of learning styles should be taken into account so that how learners perceive, input, organize, process and understand the content could be clarified and the proper/effective teaching styles could be adopted (Felder and Silverman, 1985:675; Cardellini, 2002:62-65)

Learning styles are categorized into four dimensions: Sensing/intuiting, visual/verbal, active/reflective, and sequential/global (Felder and Silverman, 1998:674-678). The basic characteristics of each dimension could be highlighted as follows:

5.1. Sensing vs. Intuiting

Sensors like dealing with concrete information-facts, observations, experimental data-, solving problems by well-established standard methods and dislike complications and surprises; are patient with detail and good at memorizing facts; tend to be more careful but may be slow; and do not like courses that have no apparent connection to the real world. Intuitors, on the other hand, prefer discovering possibilities, relationships, principles and theories; like innovation and dislike repetition; are bored by detail and good at grasping new concepts; tend to work faster but may be careless; are not happy with courses involving memorization and routine calculations.

5.2. Visual vs. Verbal

Visual learners remember best what they see, whereas verbal learners “get more out of words-written and spoken explanations”; “remember much of what they hear and more of what they hear and then say; get a lot out of discussions; and learn effectively by explaining things to others”.

5.3. Active vs. Reflective

The complex mental processes by which perceived information is converted into knowledge are said to be grouped into two categories: active experimentation which involves doing something in the external world with the information, and reflective observation which involves examining and manipulating the information introspectively. While active learners retain and understand information best by discussing it or explaining it to others, reflective learners prefer to think about it quietly first. Besides, the former like group work more than do the latter who prefer working alone.

5.4. Sequential vs. Global

Sequential learners learn best when material is presented in a steady progression of complexity and difficulty, but global learners like jumping directly to more complex and difficult material. While the former are good at analyses, the latter are better at divergent thinking and synthesis. Besides, the former follow linear reasoning processes when solving problems whereas the latter make intuitive leaps and may be unable to explain how they have come up with solutions. “They may be lost for days or weeks, unable to solve even the simplest problems...until the light bulb flashes, the jigsaw puzzle comes together” in their mind.

Although the relevant literature review reveals that student-specific characteristics, or individual learning styles, are to be considered and “a growing body of research suggest that increased learning gains can be achieved... when instruction is designed with learning styles in mind” (Larkin and Budny, 2004:2), those planning instruction often rely on their own preference, thinking that if it worked for them, it will also work well for others (Felder et al, 2000:7). In order to establish effective learning situations, preferences of learners are to be taken into consideration. To manage this, individual learning styles are to be distinguished, which would help to plan and design teaching/learning activities accordingly.

An important response to the above mentioned “how?” has been believed to provide the proper environment in which teaching/learning activities take place (Presley and McCormic, 1995:94). Besides, the extent to which the structure of instruction appeals to the personal characteristics of the individual learners is to be considered while providing such an environment (Larkin and Budny, 2004:3). In this respect, we should keep in mind that “the focus of university teaching is shifting away from the corpus of knowledge in favor of the process of learning” (Evans and Abbott, 1998:46)

6. THE HIGHLIGHTS OF A SURVEY ON INDIVIDUAL LEARNING STYLES

In search of further means of effective teaching/learning and having noticed the importance of considering the individual learning styles while designing the teaching/learning activities, the author of this study conducted at Maritime Faculty a survey on 13th through 24th Dec. 2010. The aim of the survey was to reveal the individual learning styles of both the students and the academic staff, and to see if there exist any correlation between the preferences of the two and to provide data to be utilized while designing teaching/learning

activities. The survey instrument was the Turkish version of the Index of Learning Styles Questionnaire, available and free to public use at http://www.engr.ncsu.edu/learning_styles/ilsweb.html. 76 % (n:312) of the students and 90 % (n:32) of the instructors responded the questionnaire. The individual learning preferences for each of the four categories (active/reflective, sensing/intuitive, visual/verbal, and sequential/global) was revealed to agree with one of the following three scores: *balanced* on two dimensions (the scorer will have no considerable difficulty in learning when either of the dimensions dominates the learning environment), *moderate* for one of the dimensions (the scorer will learn more easily in a teaching environment favoring that dimension) and *strong* preference for one dimension of the scale (the scorer may have real difficulty learning in an environment which does not support that preference)

The self explanatory figures in Table 1 reflect certain warnings, particularly in terms of the moderate scores, about what to be done with the teaching environment. About one third of each group is likely to learn more easily in a teaching environment which favors their preferences in all the four scales. Besides, the figures reveal a distinction (not dramatic though) between the learning styles of the Engineering Departments learners and those of the Business Administration Department learners. Therefore, the instructors are warned to plan the teaching/learning activities in accordance with this revelation of the survey.

Table 1. The Overall Preferences of Each Response Group (%)

Participant Group	Active/Reflective			Sensing/Intuitive			Visual/Verbal			Sequential/Global		
	1*	2*	3*	1	2	3	1	2	3	1	2	3
A*	62	32	6	42	44	14	30	39	31	70	24	6
B*	71	24	5	39	43	18	32	40	28	79	21	-
C*	79	21	-	45	34	21	43	42	15	75	23	2
D*	68	28	4	42	42	16	33	40	27	74	23	3
E*	56	41	3	47	41	12	28	41	31	69	28	3

A*: Maritime Business Administration
 B*: Marine Transportation Engineering
 C*: Marine Engineering
 D*: Total (Three Departments)
 E*: Academic Staff

1*: Balanced
 2*: Moderate
 3*: Strong

7. CONCLUSION

There ever have been debates about the fundamental function(s) of higher education. Although its mission has been précised in such three fields as “teaching”, “research” and “community service”, this particular outlook seems to be too general. There is a need to specify the particulars for each of these fields, which might change depending upon the specific needs and wants. Since the Industrial Revolution, for instance, the rapid developments in technology and the frequent changes in social life seem to have brought about fundamental impacts on the above mentioned three-legged mission. The recent trends have emphasized a kind of interdisciplinary flexibility in the cognitive world of higher education and eventually imposed a shift from theory to practice, and from specific subject-based and/or specific vocation-based to general intellectual competencies and/or to general transferable skills.

The prevalent discussions on the overall mission of higher education seem to have overlooked how to achieve effective teaching. The recent trends having shifted towards general intellectual competencies (synthesizing, analyzing, integrating and comparing) and general transferable skills (interpersonal skills, the ability to work in a team, decision-making, problem-solving, and communication skills) imply that achieving the outlined objectives does need distinctive care. Such care, first of all, makes it imperative that what makes higher education ‘higher’ be kept in mind while designing and conducting the teaching/learning activities. In other words, producing self-aware, self evaluative, intellectually autonomous, higher order thinking individuals equipped with cognitive and metacognitive abilities as well as the abilities to analyze an argument, to examine evidence, to integrate material from contrasting sources and perspectives and to draw different kinds of inferences seems to be essential in higher education. Despite such a critical requirement, however, most of the instructors teaching at higher education are likely to suffer from the lack of advisory support from cognitive and educational psychology. Such lack needs to be compensated so as to help these instructors in course design, course delivery and course evaluation if higher education is to reach the desired effectiveness. To overcome this problem, the instructors teaching at higher education could be provided with help concerning certain effective teaching/learning strategies. Such educational support could be provided either through an internal organization conducted by an advisor from the nearest faculty of education or an arrangement within the unit in question. The latter alternative might involve such arrangements as research activities, course monitoring and review, staff development and learning week.

Another important point to be considered in search for effective higher education is providing active and collaborative learning environments which would develop, enhance and sustain personal autonomy, the ability to work in a team, interpersonal skills, questioning perspectives, intellectual and analytical competencies and movement beyond independent to interdependent learning, encouraging the learner to develop beyond a relatively passive assimilation of a curriculum and become an active partner in it, such learning environments are thought to contribute a lot to acquisition of higher order thinking and gaining general transferable skills.

Still another point to take into account in making higher education effective is to involve the individual learning styles that are categorized into such four groups as

sensing/intuitive, visual/verbal, active/reflective, and sequential/global. Such involvement would help reveal how learners perceive, input, organize, process and understand the content. In order to increase learning gains planning instruction must consider student-specific characteristics which involve motivation, approach to study, epistemological beliefs, intellectual development and individual learning preferences.

A survey on individual learning styles recently carried out at DEU Maritime Faculty reveals that around one third of the students are likely to learn more easily in a teaching environment favoring their learning styles.

As a conclusion, if teaching at higher education is to be effective, not only the specific aims of each programme of studies but also the general purposes of higher education are to be kept in mind; academicians should be provided with facilities so that they could get familiar with the recent developments in cognitive and educational psychology; active and collaborative teaching/learning environments must be established; and the individual learning styles of the learners must be taken into consideration while planning instruction.

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