**What is to be a Teacher in Higher Education: The uelationdhip between Teaching and Research?**

*Ismini Vasileiou*

# What is to be a Teacher in Higher Education: The relationship between Teaching and Research?

**Ismini Vasileiou**
School of Computing & Mathematics
University of Plymouth
Lecturer in Information Systems
*Ismini.vasileiou@plymouth.ac.uk*

## Abstract

This paper examines recent developments in the role of the university in increasingly knowledge-based societies. The universities play an enhanced role in technological innovation and the relationship between teaching and research is widely being researched.

Through this article I will try to draw from my own experiences and try to critically explore how teaching is affecting research and vice versa. The conclusion will look at the future mass higher education.

## Introduction

"Higher education lecturers facilitate learning and carry out research activities. They teach academic subjects to undergraduate and postgraduate students, using methods including lectures, seminars, tutorials, practical laboratory demonstrations, and field work. Most Higher Education lecturers pursue their own areas of research and develop these in order to contribute to the wider research activities of their department and/or institution." (Prospect, National Online Prospectus for graduates). At present I am a lecturer in Information Systems at the University of Plymouth. I teach all first year students and I have quite a lot of responsibilities such as being their stage tutor and final year project supervisor. I have been in this post for the last 6 years. This paper will discuss the fact that in order to become a lecturer in a higher education institution you need to be research active and hold a doctorate degree (PhD). The major responsibilities of academics in the modern university are teaching and research. Indeed some believe that one of the most important characteristics of a university is that all academics are expected to be active researchers and active teachers (Prospect). Especially in disciplines like informatics and computing the research teaching nexus is widely being explored as it contributes to the development of these disciplines (White & Irons, 2007). In the UK the Council of Professors and Heads of Computing promote the importance of Computer Science Research and education through their "Grand Challenges" (White & Irons, 2007). Hence, there are contradictory views as to the relative importance of research and teaching and this document will try to analyse the issues and promote an understanding of the benefits of the research teaching nexus among the different disciplines/courses. There are a number of possible motivations for seeking a greater understanding of the ways in which research and teaching are related to each other. These include increasing student motivation, enabling the taught curriculum to keep pace with the fast rate of change within the research and development agenda of each discipline and providing

such educational experience that will encourage students to take deep approaches to their learning and effectively to be independent and lifelong learners.

The best place to seek information when applying for such job is the website of Prospect where information on career planning for graduates is being offered. There it is mentioned that although this kind of job is open to all graduates, you also need to demonstrable experience of teaching, be able to produce original research for peers and hold early publication of academic work. It clearly declared that entry without a degree is not possible. If you do not have a PhD the entry is very difficult. When applying for a lecturer's job you will need to show evidence of having the ability to sustain an interest in and enthusiasm for your area of specialist research and to impart this to students and peers. You need evidence of published research and participation at professional conferences and seminars. Capacity for original thought is highly demanded alongside with proven teaching experience and expertise in their own subject area.

Very importantly it is being noted that part-time teaching roles while you are a postgraduate student do not guarantee a full-time post on completion of a PhD. In the early stages of your career, it may be very difficult to gain a permanent contract as a higher education (HE) lecturer and you may have to accept posts on a fixed-term contract.

This analysis will start by looking at some past studies on the relationship of teaching and research and I will try to discuss and analyse if the nature of the relationship, or that relationship is necessary and how education is being affected by asking lecturers to carry out both teaching and research. The paper will conclude by summarising the key points and making clear if teaching can live without research and vice versa.

## Background of the research on the relationship of teaching and research

The research that I started looking at was initiated in 1972. It was discovered that there is an inherent conflict between teaching and research because effective researchers should be highly specialised whereas effective teachers must be broad (Sample, 1972). Later on it was said that academics may neglect their teaching if they are highly involved with research and the relation between teaching and research was called antagonistic (Blackburn, 1974). This was also supported my Marsh (1987) that in order to pursue research energy and time are greatly needed.

Later, in the 90s, research showed that it is not necessary for every academic to be an active researcher for the department in order to have a strong research department (Ramsden and Moses, 1992). In 1996 many authors did a more complete research on the relation of teaching and research. Hattie and Marsh (1996) found no relationship between the quality of research and the quality of teaching but on the other hand Braxton (1996) noted that the roles of teaching and research are similar. They involve common values and they should be mutually reinforcing. In addition to that, Sullivan (1996) claimed that academic staff support normative structures that place a high value on teaching effectiveness. It has also been evidenced that teaching is not a routine function tacked on that is something anyone can do (Boyer, 2002). When defined as scholarship teaching both educates and entices future scholars. The awareness to the possible relationships between teaching and research was mostly raised in 2007 and it was observed that the potential link between teaching and research was one focus of the Robbins report in 1963 (Fasli, 2007). Finally, the Higher Education Academy is nowadays sponsoring research focussing on the

research teaching nexus and has produced a variety of publications which address this agenda from both the strategic and disciplinary perspective.

So how is this helping us? In order to understand if research can support teaching and if teaching can support research I will discuss each one of these in a separate section and then I will examine what affects today's university.

**Teaching in Higher Education**

Higher Education is experiencing massive changes reflecting the impact of new technologies and of globalisation. Lifelong learning is at the centre of this new agenda (Hannan, 2001). The Learning Age publication by DfEE states that learning is the key to prosperity. Jobs are changing and with them the skills needed for the world of tomorrow (DfEE, 1998). If young people are to become effective citizens of tomorrow, it is vital that the curriculum of Higher Education contains both a global dimension, which explores the multiple spatial interrelationships between local, national and global communities, and a futures dimension, which similarly looks at the temporal interrelationships between past, present and future. In that way there will be a share of common concern for the process of education, and it is this process which is at the root of effective learning (Hicks, 2002). How young people learn is as important as what they learn, and most practitioners put great emphasis on participatory and experiential modes of learning which foster both pupil autonomy and the development of critical thinking skills (Hicks, 2002, p. 32). Effective learning is seen as arising out of affirmation of each pupil's individual worth, the development of a wide range of cooperative skills, the ability to discuss and debate issues, to reflect critically on everyday life and events in the wider world, and to act as responsible people. This requires a teaching style which is open and facilitative. Its intention is to model participation, cooperation and justice in everyday classroom interaction, believing that the medium of learning should match the message.

This is the fertile ground in which a critical education for the future can grow. It is ground which has been well prepared, both theoretically and practically, over the past decades. In particular, proponents of global education have the interest, skills and expertise that is needed to bring the futures dimension more alive in the curriculum. If the task in the 1980s was to emphasise the need for a global dimension in the curriculum, the task for the new century is to highlight also the need for a clear futures dimension (Hicks, 2002, p.33).

All education springs from images of the future and all education creates images of the future. Thus education is a preparation for the future (Toffler, 1974 in Hicks, 2002, p. 33). Higher Education teachers have different conceptions of teaching and learning. The different ways in which they approach their teaching are related to the differences in these conceptions. According to Brew (2003) there are two approaches to teaching. The first one is the Information Transmission that is teacher focused. Teachers who conceptualise their teaching as being about transferring information from the syllabus to students are associated with an approach to teaching based on an idea of the teacher as the focal point. The second approach is the Conceptual Change which is student focused. Teaching is focused on an attempt to change the students' conceptions of the phenomena of their study and it is associated with an emphasis on the student as central. Trigwell, Prosser & Waterhouse (1999) associate the first approach as a surface approach to learning and the second approach as a deep approach to learning. At this point it worth noting Ernest Boyer's work (in White & Irons, 2007) "Reinventing the undergraduate education." Boyer defined four types of scholarship including teaching and learning.
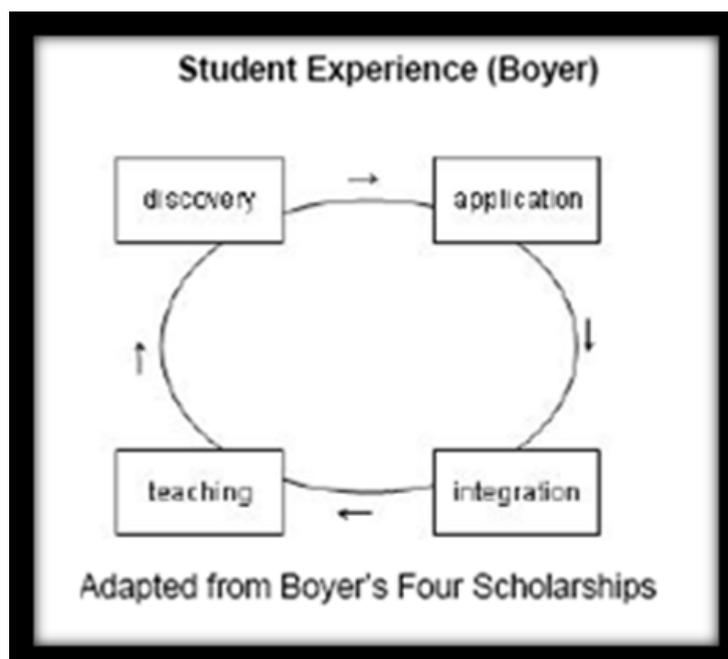
Figure 1: Two perspectives on the relationship between research and teaching (White & Irons, 2007)

This model has been mainly created to apply to teaching within research intensive institutions. The scholarship of teaching and learning integrates the other scholarship in to the discipline specific scholarships of discover, integration and application. Hence, Boyer's views are that the curriculum should be seen as motivations for innovations (White & Irons, 2007). Curriculum can use the scholarship of education and educational scholarship within any discipline. The development of specific approaches can enhance the curriculum and provide opportunities for students to gain skills, knowledge and understanding. Interesting enough, reading the THE (Times Higher Education) magazine, there is an article published that comments on how students perceive nowadays a degree. The title of the article is "Love of learning lost in studying for jobs". People are seeing education as no more than a tool for getting a job and a degree is a passport into the world of work. In the same article Mike Thorne states that too few people value education for its own sake. He carries on by saying that students are rarely motivated by a love of the discipline they are studying. He concludes by saying that universities should have other aims than to serve the demands of employers and it is by no means clear that all employers know what they ought to want of their employees. Additionally, universities should prepare their graduates for life.

In conclusion to this section Higher Education through teaching educates and skills the nation for a knowledge-dominated age. It gives graduates both personal and intellectual fulfilment. Working with business, it powers the economy, and its graduates are crucial to the public services. And wide access to higher education makes for a more enlightened and socially just society. The aim of this section is to help us understand the changes that are taking place within Higher Education in the 21st century. The move towards a critical education affects the needs of teaching and learning in Higher Education. Consequently, academic identities and learning are being questioned and challenged. Teachers in Higher Education belong in a group and that group is mainly their institution they are working for. Organisations are being structured both formally and informally (Kember, 1997) so individuals within them relate to one another. Within the Higher Education institutions the conceptions of

teaching and the identities of the academics are being reviewed and many times problematised. A teacher is not working alone, but is being influenced by the institution, the students but also the real world – industry. Therefore, it is quite obvious that teachers' identities are being affected by other factors which many times are even external to the institution (Kogan, 2000). Just knowing your specialist subject is not enough. Teachers need to pursue their lifelong learning and that can be largely done by carrying out research on their discipline.

## The need of research in Higher Education

According to Flexner (1930 in Lewis, 1992) during the 19th century universities in Britain were still largely teaching institutions. At the beginning of the 20th century a change was noticed. The UK has some of the best research universities in the world, thanks in good measure to the relative autonomy of its institutions and to the way that research funding is allocated on the basis of peer-reviewed excellence, as opposed to the impulses of central government (Lambert, 2006). Higher Education's research pushes back the frontiers of human knowledge and is the foundation of human progress. Even DfES (2003) has done relevant research in order to identify the needs of Higher Education. Based on their data UK holds 8 per cent share of the world's publications and 13 per cent of the world's most highly cited publications (DfES, 2003). In addition to that DfES suggests that Higher Education should recruit, retain and reward calibre of academic staff needed to sustain and improve the research. In 1998 Boyer's report recommended that research based learning should be the standard. Students should be able to engage in research even from year 1. Research is the creation or discovery of a body of knowledge (Brew, 1999). But what is knowledge. What affects the acquisition of knowledge.

Academics have different conceptions which are personal beliefs but also influenced by the culture of the discipline in which the academic is educated and working. Furthermore, Brew (1999) declares that knowledge tends to be viewed as a quantity of something which is being built up. There are disciplines such as Computing that change very rapidly. Therefore, teachers in Higher Education need to keep up with their knowledge and research needs to become a vital component.

## Relationship and Boundaries between teaching and research in Higher Education

There has been extensive research on the relationship between Research and Teaching. Researchers have been looking at how teaching is affecting research, how research is being affected by teaching and they also have been providing models to see the changes and differences throughout the years. In 2001 Coate et al demonstrate six possible relationships between teaching and research. The integrated type is where research and teaching are not distinct and there is considerable overlap. The second level of relationship is that of positive interactions between teaching and research. In this case teaching has positive influence on research and vice versa. The third level is that of the independence between teaching and research, the relationship is neutral. Finally, the very last relationship is the one where teaching or research influences each other in a negative way. Later in 2003, Brew offered other models of the relationship between teaching and research. She actually separates them into two, the old model and the new model. In the old model is based on the idea disciplines are aligned with the departments with a conception of knowledge as objective and separate from knowers. In that case research is concerned with the building up of

bodies of knowledge within the research culture. This model is teacher focused and concerned with the transmission of information to the students.
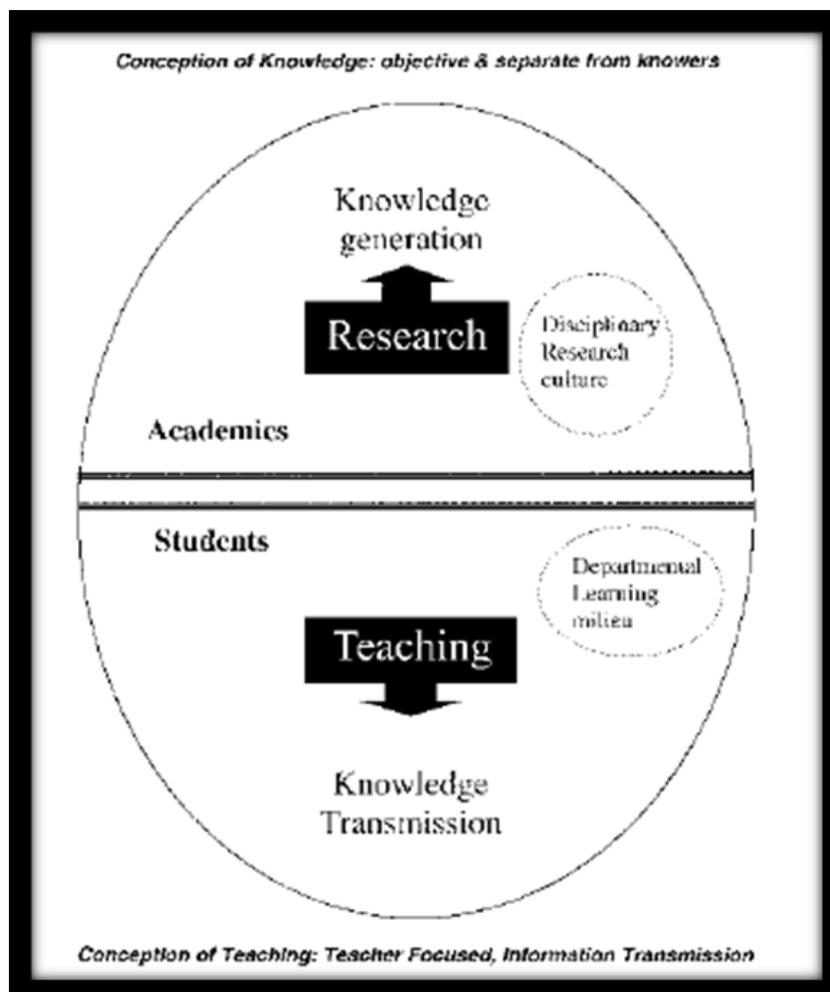


Figure 2: The old model of the relationship between teaching and research (Brew, 2003)

The new model is being driven by Lave and Wenger (1993), Boyer Commission (1999), Prosser and Trigwell (1999) and Brew (1998, 1999, 2001). By adopting this model students learn as a whole which is connected to the emphasis on research and scholarship of universities. Hence, this model is student focused. Having considered all the above, by looking at the two models we can see the changes that higher education is going through and how research is affecting teaching but also why research is needed within the different disciplines.
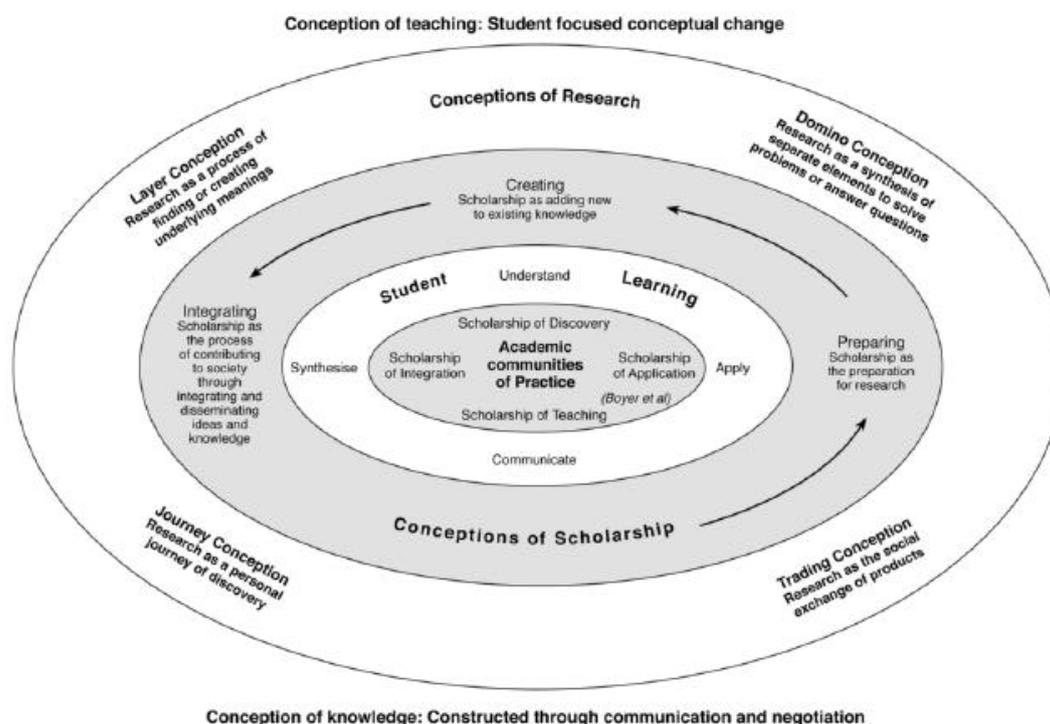
Figure 3: The new model of the relationship between teaching and research (Brew, 2003)

The boundary between teaching and research is becoming more complicated rather than clearer. In his speech Scott (2004) said that there are growing efforts to create a much clearer demarcation between teaching and research in terms of individual careers, funding streams and institutional missions. Academies, should esteem teaching as highly as research.

We have now moved from elite to mass Higher Education but some still preserve research as an elite activity (Scott, 2004). Research and teaching are simply different aspects of academic work. A fixed relationship between research and teaching tends to devalue teaching, because it cannot escape from the shadow of research, which grants all the academic prestige. On the other hand side, research is a professional activity with its own career structures and resource patterns.

Otherwise research capacities will be shaped by teaching needs. As Scott states (2004 and 2005) we need a critical mass of researchers with a strong research culture and infrastructure. So having discussed so far about teaching solely and research solely we come to pose the question what is actually meant by research and teaching. It is true that it is impossible to teach well without reflection, analysis and discussion. Both research and teaching are extremely heterogeneous activities. In debates about the

relationship between research and teaching they are often treated as essentially homogeneous activities with clearly defined boundaries (Scott, 2004).

Teaching always has been a heterogeneous range of activities which we have chosen to hold within a single description. The variety in teaching styles/methods has increased. The course structures have become much more flexible and the development of computer-based learning management systems, and virtual learning environments, is also adding to that variety by introducing a whole range of new elements to teaching. Research is also diverse range of activities that distinguish between the people who really do the research and the rest who merely need to keep up with it (Scott, 2004). Through research knowledge is being produced and gathered. The relationship between them is not the same for all disciplines and at all times. In other words it is highly context-dependent.

It has been argued that academic identities are a complex and heterogeneous mix of individual and community values, commitment to particular forms of knowledge or epistemological frameworks and a sense of worth or self esteem (Visser-Wijnveen, 2006).

They are worked out predominantly in the roles and tasks of research, teaching, administration and, increasingly frequently, management. Academics in pre-1992 universities assumed that being an academic meant combining research, teaching and administration, though most put the emphasis on research and/ or teaching. The identity of some senior staff across the sector was centred in their teaching role. This was more common in post-1992 universities, whose history was bound up in teaching, but it was also a feature of the older universities (Kember, 1997).

Young staff in new universities might see themselves primarily as researchers, while some of their older colleagues are seeking to develop or strengthen a research profile. However, disciplinary identities are key variables across the sector, as far as the relationship between research and identity is concerned. While most scientists have chosen a university career because it will afford them the best conditions to pursue their research, even if they also enjoy teaching, those in other disciplines are more likely to place value on the combination of research and teaching. For some the integration of these activities is central to their identity.

Having discussed the above, becoming a manager is now also a recognised and essential component of the academic career route, an alternative or additional source of achievement and self-esteem for some, although for others an unwanted obligation and not something they wished to be identified with (Prospect). One of the most persistent themes in my reading is that academic working lives continued to be centred in their discipline, whether they saw themselves primarily as researchers, teachers, managers or a combination of more than one of those. Some academics, particularly in the context of their educational responsibilities, explicitly see sustaining the discipline as an end in itself. Many academic values are embedded in concepts of the discipline and often expressed in a language shared by members of the discipline (Visser-Wijnveen, 2006). Amongst other generic academic values, the most prominent is academic freedom. This means more than one thing. In part it means being free to choose one's own research agenda and to follow it through. It is strongly connected with recognition in the discipline and the importance of a sense of intellectual continuity and coherence in research agendas. Academic freedom also means being trusted and being given the space to manage the pattern of one's own working life and to determine one's own priorities. For some, it is a matter of quality of life for themselves and their families and perhaps the main reward of an academic career.

Hence, academics can have a variety of epistemological and ontological beliefs that shape their understandings of the research and teaching, learning experiential field and hence of the research and teaching relation. In particular, beliefs about the nature of knowledge - what it is, how we create it, how we share it –determine the spatial relationship of research to teaching. We can have disciplines where knowledge is generally understood to be cumulative, hierarchical, and concerned with universals, quantification and discovery (Becher, 1989; Biglan, 1973; Colbeck, 1998). The existing disciplinary epistemology means that research and teaching occur on different places in a hierarchical relation one to another and that teaching is conceptualised primarily in terms of transmission of research-informed knowledge down to the recipient. By contrast, in other disciplines, possibly non technical ones, scholars use new ways to explore fields mapped by others and knowledge is concerned with particulars, qualities and understanding. The disciplinary community participate in the de-construction of knowledge.

**Conclusion**
In this paper it is being discussed that research and teaching are not separate worlds. Both are sets of heterogeneous activities that overlap. This has always been true - but the impact of the Knowledge Society has been to make research and teaching even more perfect.
There are numerous arguments that are not essential for linking teaching and research. Particularly, the need to validate the university's academic authority, to attract and motivate staff and to emphasise on the institutional reputation. On the other hand side there are equally powerful fundamental arguments such as the need to excite the intellectual imagination of students, the growth of new hybrid practices and the emergence of a new economy of knowledge (Scott, 2004).
In a knowledge society we have all become knowledge workers. As a result the role of dedicated specialised „knowledge. institutions like universities is changed, even challenged - because all institutions have to be „knowledge. organisations. The boundaries between specialist, knowledge, activities, like teaching and research, are becoming much more complicated. The goal of this paper is to enhance the view that research and teaching are totally linked. I will now summarise the points I have discussed so far in order to support this view. Universities are not entirely free to set their own standards and make their own awards. Many times professional bodies will set them. For example in the computing discipline that I have the most experience, the British Computer Society has specific requirements in order to accredit the courses. Many professional bodies insist on involvement in research and as such universities are able to educate future professionals adequately. Even the QAA is very explicit about the connection between good teaching and research (Scott, 2004). Involvement in research enables universities to attract good teachers and it is impossible to be a good teacher at university level without being intellectual alert and active. Not to forget that the reputation of an institution depends on its research. The league tables are highly influenced by the RAE assessment and students are influenced a lot by those tables.
In conclusion, there are three main reasons why research and teaching should be linked at the university and in order to become a teacher at a university you will need some research experience. First of all academics need to be engaged in research in their disciplines so they are aware and up to date with the developments of their domain. Second, students should be involved in some research as well so their critical thinking is enhanced and they are introduced in the lifelong learning idea that will

support their future career. Finally the impact of the knowledge society has affected universities in a large degree. As Scott (2004) says in today's society we are all are knowledge workers. Knowledge is filled through society and distributed. Hence the universities which are knowledge institutions (Scott, 2004) have changed and are challenged.

The research on this topic is endless. I would like to conclude with the view that teaching and research are two things that affect each other. Their relationship and boundaries will depend on the discipline and the needs of that discipline. The main idea of today's university and the university of the future is to support lifelong learning and prepare the graduates for the transition from being facilitated while learning and pursuing learning by themselves. Teaching needs to be informed and that can only be done only of teachers are researchers as well.

## References

Atwood, R. (2008). Love of learning lost in studying for jobs, *Times Higher Education*, February 2008, p.8

Becher, T. (1989). *Academic tribes and territories: Intellectual inquiry and the culture of disciplines*, Buckingham, Open University Press

Biglan, A. (1973). The characteristics of subject matter in different academic areas. *Journal of Applied Psychology*, 51(3), pp. 195-203

Boyer E. (1990). Scholarship reconsidered: Priorities of the Professoriate, Journal of Engineering Education, Retrieved on 25 February, 2011 from http://findarticles.com/p/articles/mi_qa3886/is_200307/ai_n9298841

Boyer, E. (1998). The Boyer Commission on Educating Undergraduates in the Research University: Reinventing Undergraduate Education, Retrieved on 18 March, 2011 from http://naples.cc.sunysb.edu/Pres/boyer.nsf

Brew, A. (1999), Research and Teaching: changing relationships in a changing context, *Studies in Higher Education*, 24(3)

Coate, K., Barnett, R., Williams, G. (2001) Relationships between teaching and research in Higher Education in England, *Higher Education Quarterly*, 55(2)

Colbeck, C. (1998). Merging in a seamless blend: How faculty integrate teaching and research. *The Journal of Higher Education*, 69(6), pp. 647-671

DfES (2003). The future of Higher Education, Retrieved on 17 March, 2011 from http://www.dcsf.gov.uk/hegateway/strategy/hestrategy

Hattie, J, & Marsh, H. W. (1996). The relationship between research and teaching-a meta-analysis. *Review of Educational Research*, 66, pp. 507-542.

Hicks, A. (2002). *Lessons for the future*, London, RoutledgeFalmer

Department for Education and Employment, (1998), *The Learning Age: a renaissance for a new Britain*, London, The Stationary Office

Fasli M. (2007). On the Research-Teaching Nexus. In White, A. & Irons, A. (2007), The research teaching nexus in the computing disciplines: a comparative study In Proceedings of the *Informatics Education Europe II Conference*, IEEII, 2007

Hannan, A. (2001). Changing Higher Education: teaching, learning and institutional cultures, Retrieved on 7 March, 2011 from www.leeds.ac.uk/educol/documents/00001855.htm

Hattie J, Marsh HW. (1966). The Relationship between Research and Teaching: A Meta-Analysis. *Review of Educational Research*, 66(4), pp507-42

Blackburn, R. T. (1974). The meaning of work in academia. In J. I. Doi (Ed.), *Assessing faculty effort. New Directions for Institutional Research,* Vol. 2, pp. 75-99, San Francisco: Jossey-Bass

Barnett, B. (1992). Teaching and research are inescapably incompatible. *Chronicle of Higher Education*, p. A40

Marsh, H. W. (1979). Methodological issues, and directions for further research, *International Journal of Educational Research*, 11, pp. 253-388

Jenkins A, Healey M, Zetter R. (2007). *Linking of staff disciplinary research and student learning*. York, Higher Education Academy

Jenkins A, Healey M. (2005). *Institutional Strategies to link teaching and research*. York, Higher Education Academy.

Kember, D. (1997). *A reconceptualisation of the research into university academics. conceptions of teaching, Learning and Instruction*, 7(3), pp. 255-275

Kogan, M. (2000). Higher Education communities and identities, *Higher Education Quarterly*, 54(3), pp. 207-216

Lambert, R. (2006). Six steps to revitalise Europe's higher education , Published in the *Financial Times*: 15 June 2006, http://www.cer.org.uk/articles/lambert_ft_5june06.html Prospect, Higher education lecturer: Entry requirements, Retrieved on 25 February, 2011 from http://www.prospects.ac.uk/cms/ShowPage/Home_page/Explore_types_of_jobs/Types_of_Job /p!eipaL?state=showocc&idno=42&pageno=3

Ramsden, P., & Moses, I. (1992). Association between research and teaching in Australian higher education. *Higher Education*, 23, pp. 273-295.

Sample, S. B. (1972). Inherent conflict between research and education. Educational Record, 53, 17-22.

Scott, P. (2004) Knowledge work in a knowledge society: Rethinking the links between university teaching and research, Retrieved on 25 March, 2011 from www.brookes.ac.uk/genericlink/documents/Scott%20Academy%20conf.doc.doc

Scott, P. (2005). Mass Higher Education: Ten years on, Retrieved on 20 March, 2011 from www.aua.ac.uk/publications/conferenceproceedings/2005warwick/peterscott.doc

Sullivan, A. V. S. (1996). Teaching norms and publication productivity. *New Directions for Institutional Research*, 90, pp. 15-21

Visser-Wijnveen, G. (2006). The research teaching nexus: A metaphor study into Knowledge, Research and Teaching, Published at *ICO-Toogdag Conference*

White, S. & Irons, A. (2007). The research teaching nexus in the computing disciplines: a comparative study, Proceedings of the *Informatics Education Europe II Conference*