Facing New Expectations—Integrating Third Mission Activities into the University

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1 Extending Teaching and Research—New Conditions and Challenges for Universities and the Academic Profession

Throughout history, universities have been providing society with new ideas, knowledge and specific skills as institutions of advanced education and research. Furthermore, they have played critical roles as agents of social change. Bearing in mind the remark of Rosenthal and Wittrock (1993) that the university is the second oldest institution with a continuous history in the Western world, right after the Roman Catholic Church, one would expect strong stability from such longevity. However, several major shifts in higher education have occurred (Stephens et al. 2008). In the late nineteenth century, the first change was largely introduced within the modern Humboldtian university—the development of the modern research university whose mission was to pursue scientific knowledge (Scott 2006). The primary and, for several centuries, intact purpose of (medieval) university at that moment expanded from merely preserving and transmitting knowledge to creating it (Etzkowitz 2001; Scott 2006). Industrial Age then expanded the role beyond the transmission and research to advanced training of professionals, as was demanded by industrialisation (Scott 1992, 2006).

For the sake of the knowledge-economy and society, rising demands for knowledge and highly skilled labour, have changed universities remarkably in the last two or three decades. Much of the recent literature on the university's roles draws attention to those significant changes that higher education has undergone in most parts of the world. It has expanded drastically, become increasingly differentiated and appears to be driven by different external forces (Teichler 1996; Brennan 2007; Altbach 2008). The scale of expectations has increased exponentially and a much

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wider range of stakeholders place their demands upon universities today (Jongbloed et al. 2008). Those include the governments, students, the industry and the civil society (Göransson et al. 2009). Governments demand education for an increasing number of students; the students seek for job relevance in academic curricula; the industry is focused on highly specialised skills and demands innovation and research relevance; civil society looks for guidance and assistance in addressing all sorts of relevant issues which affect both the local and global community.

Over the last decade, many national and international reports argue that higher education has become subjected to various pressures, which include: greater managerialism, greater instrumentalism, greater competition, new forms of control and growing demands for accountability, relevance and employability, competitive globalisation, growing bureaucratisation, centralised accumulation of decision making power, constraints on federal resources, and, above all, the infiltration of corporate culture (Checkoway 2001; Brennan et al. 2004; Mac Labhrainn 2005; Schoen et al. 2006; Kogan and Teichler 2007; Brennan 2007; Locke and Teichler 2007; Altbach 2008). The latest shift was to the discourse of for-profit activities. This shift, with its primary focus on output and productivity, creates additional pressure for higher education (and academics in particular) to produce practical knowledge for the knowledge-based society (Etzkowitz et al. 1998).

However, in the last decade, the governments all around the world have come to regard a large or growing higher education system as essential for economic development emphasising its economic pay-off (Brennan et al. 2004). Brennan (2007) argues that there is something behind the knowledge-based society. He claims that actually the needs of the economy and industry lay behind. In other words, the needs that are generally putting pressure on universities to be more relevant. Ordorika (2009) claims that the idea of universities being broad cultural societal projects or institutions focused on the production of public goods has moved into a marginal or solely discursive realm. These notions have been substituted by a renewed emphasis on the links between higher education and the market. According to different authors, they were substituted by a schema of entrepreneurial university (Clark 1998; Etzkowitz et al. 2000); by notions of excellence (Readings 1996); by the centrality of managerial concepts and goals, such as ‘productivity’ or ‘efficiency’; and by the increasing privatisation of education supply and financing (Slaughter and Leslie 1997, in Ordorika 2009). Some even speculate that this will lead to a change that would make participation in the process of economic development a core university value (Gibbons 1999 cited in Stephens et al. 2008).

According to Nayyar (2008, in Escrigas and Lobera 2009) markets and globalisation are beginning to influence universities and shape education in terms of what is taught and researched. Universities are introducing new courses, which are in demand in the market, and the markets are influencing research agendas of universities. The universities which follow such a paradigm might be initiators of innovation but Enders and Jongbloed (Jongbloed et al. 2008) anticipate, on the other hand, a strong possibility of placing the ‘private good’ character of higher education above the ‘public good’. Escrigas and Lobera (2009) therefore note that higher education institutions have reached a critical moment in their long evolution as disseminators

and producers of knowledge. They are, at the same time, facing global challenges, including the rapid development of science and technology; demands related to the creation of knowledge-societies; and the growing competition dominated by market forces. Universities are challenged to fulfil multiple roles, and their attempts in doing so, make their mission disperse, and the quality of their academic activities, as Altbach (2008) warns, often diminished.

Universities have frequently been regarded as key institutions involved in the process of both economic and social change and development. Therefore, the ongoing pressures put on higher education for greater responsiveness are not only limited to the economic sphere. They simply cannot be separated from the political one or from the network of institutions, which constitute civil society (Brennan et al. 2004). A disturbing increase in warning analyses and a series of researches related to the current trends and patterns of resource-use, followed by a rapid technological change as well as rapidly changing and complex societal structure, are all stressing the impact they have on society in critical and, above all, unsustainable ways (Cifrić 1997; IPCC 2007; Stephens et al. 2008). It is not surprising to find an impressive set of documents, declarations and protocols which indicate existing problems in our society and recognise the importance of higher education and academic involvement in delivering possible solutions, as well as promoting civic engagement and sustainable development.[1]

It is also important in this context to point out recent research studies which systematically deal with low level of citizens' political participation on the one hand, and the increase of the level of political apathy and alienation on the other, as well as indicators of a growing mistrust in political institutions and structures (Šalaj 2002). The results, which show that opinions about political institutions (in this case in Europe and EU institutions) are not more positive among civil society activists than among average population, prove the seriousness of the situation (Maloney and van Deth 2008). What is even more distressing is the lack of youth interest for social and political engagement. Both in Europe and USA—almost equally—the

[1] Besides the latest and, as Lindberg (2010) pointed out, extremely relevant for universities all over the world—The Bonn Declaration (2009) adopted at the UNESCO World Conference on Education for Sustainable Development, then the most influential, the UNESCO World Conference on Higher Education in 1998 and The UNESCO World Declaration on Higher Education for the Twenty-first Century: Vision and Action, some of the most relevant documents related to the contemporary role of universities and academics are: The UN Millennium Declaration and the United Nations Millennium Developmental Goals; Kyoto protocol; Education for All; Food for All; the UN Decade of Education for Sustainable Development 2005–2014; High-level Group Report on the Alliance of Civilizations, etc. Additional selection of international declarations also emphasising the role of universities and higher education in society (in the field of environmental protection, sustainable development and cultural understanding) offer the following relevant documents: The Stockholm Declaration, Sweden (1972); The Talloires Declaration, France (1990); The Halifax Declaration, Canada (1991); The Rio Declaration, Brazil (1992); Agenda 21 (1992); The Swansea Declaration, Wales (1993); the Copernicus Charter (1993); The Barbados Declaration (1994); Learning: The Treasure Within, UNESCO (1996); The Thessaloniki Declaration (1997); The Earth Charter (2000); The Luneburg Declaration, Germany (2001); Alliance of Civilization (2005); and Communiqué of the 34th session on the UNESCO General Conference (2007).

youth find no interest in the public sphere and politics, have no confidence in state institutions nor the politicians, are rarely willing to volunteer (long-term), and the percentage of youth voters is diminishing (European Commission 2007; Checkoway 2000; National Commission on Civic Renewal 1998; Putnam 1995). Different researches warn that students leave universities without knowing democratic principles. They usually lack the knowledge and skills necessary for their role as active citizens in the community and for democratic development. Regardless of their higher education surrounding, they stay detached from the needs of civil society as well as from the possibility to contribute to the community development. It seems that our students leave university without the sense of social responsibility for community needs and problems.[2] Considering its expected role in society, it is perfectly understandable to actually expect from the academic community to make the necessary changes.

The social context in which universities operate today strongly emphasises its economic, instead of its broader societal, relevance. Also, the focus of academics on core activities of teaching and research has intensely diminished with their struggle and aspiration to become market-oriented, and their work market-relevant (Clark 2004; Geiger 2004; Altbach 2008). Introducing more market-like processes and money-making opportunities into higher education and all of the above mentioned changes has brought tremendous challenges for the traditional roles of the academics (Morshidi et al. 2007). As core staff in the institutions of higher education, academics are evidently affected by the changes around and within higher education (Locke and Teichler 2007) and faced with major challenges concerning its structures and values (Vabø 2007). The faculty is challenged to teach more, collaborate more inside and outside the academia, to be fundraisers and adopt greater administrative and managerial roles and to engage in (third mission/service) activities for which the traditional faculty reward structures have had little regard (Schroeder 1999; Golde and Pribenow 2000; O'Meara et al. 2003; Ledić 2007).

On top of innovative teaching and research, universities and academics are confronted with a new set of roles, with the emphasis on promoting the usefulness of knowledge and the scholarship of application (Sirat 2007). By raising the level of professionalisation of educational programmes and research, by departmentalisation (Lucas 1994; Checkoway 2001) and professionalising the role of academics (Kogan and Teichler 2007; Locke and Teichler 2007), it is obvious that the academic community is adjusting to its market surroundings. The increasing involvement of universities in various activities, brought by the changes described above, as Cummings (2006) argues, results in a potential diversification of the academic role. Along with teaching and research at the university, professors engage in various off-

[2] According to a comparative research conducted in eight EU member states "EUYOUPART—Political Participation of Young People in Europe: Development of indicators for Comparative Research in the European Union" 63 % of youth does not show any interest for the public sphere. The research was conducted in Italy, Austria, Germany, France, Great Britain, Slovakia, Finland and Estonia between 2003 and 2005 on the population of youth from 15 to 25 years of age. The Austrian Institute for Social Research and Analysis conducted the research. More information available at: http://www.sora.at/de/start.asp?b=14.

campus activities. However, it rather seems that new assignments are simply being added to the existing load (Cummings 2006). The increasing demands on academics are distracting them from traditional teaching and research.[3]

Because of the before mentioned reasons, higher education has become a target for critics who claim several things. First of all, students (successfully) leave universities without developing active citizen's competencies. Secondly, academic research does not respond to community needs. Lastly, universities, by being completely insensitive to the problems and preoccupations of contemporary society, have lost their civic purpose[4] (Bender 1997; Hollander and Saltmarsh 2000; Ehrlich 2000; Checkoway 2000, 2001; Harkavy 2006). Taylor (2008) believes that universities should contribute more to social development by educating socially responsible and active citizens, promoting and developing the concept of sustainable development, promoting civic engagement and directing and facilitating active participation of citizens in the community.[5]

Stephens et al. (2008) claim that institutions of higher education and academics have a particularly interesting potential in society to facilitate societal responses to the plethora of sustainability challenges facing communities around the world. That presupposes, emphasises Escrigas (2008), a powerful wish, first of all, to change the current individual and competitive university paradigm into a social and collaborative one. The change should include the shift of focus from content to applicability of content and values; from educating productive professionals to educating socially responsible citizens who are professional in what they do; from a dominant market-orientation to a social one. Finally, higher education as a public good should be based on the contribution of professional citizens to public and common good and the development of human and social capital, and not on individual status and producing rich individual professionals and supporting economic development.

As contemporary society faces challenges associated with rapid technological advancements, environmental changes, resource scarcity, increasing inequality, injustice and democratic deficit, new demands are being placed upon universities with various opportunities for higher education and academics emerging (Stephens et al. 2008). Universities and academics should be engaged in delivering solutions for these complex problems in innovative ways, opening the space of traditional teaching and research functions. In addition, Calhoun (2006) argues that academics

[3] The international comparative analysis on the academic profession reveals that the time spent on service activities by university professors varied according to country from 6 to 12 % (Teichler 1996).

[4] Parker and Jary (1995) warn about how the current changes have transformed universities in *McUniversity*—widely available and standardized service.

[5] Jongbloed et al. (2008) reminded on the OECD-CHERI edition *The University and the Community: The Problems of Changing Relationships* from 1982, where universities were called upon to assume a public service function, i.e. make a contribution to solve major problems the local community and society at large were faced with, and participate directly in the process of social change. They continue by stressing the relevance of this 27 years old call in today's discussions on the role of the university.

have the responsibility to be relevant—to take knowledge beyond the walls of the academia into the public domain.

Literature analysis suggests that it is the issue of the third mission that thoroughly explores how universities interact with the public domain Calhoun (2006) talks about—meeting the needs of society at large. Presenting and analysing various concepts and interpretations of the third mission activities set the platform for further analysis of broadening core academic activities (teaching and research). However, this paper focuses on the two following segments: (I) university civic mission and (II) education for sustainable development, with double focus: (I) as issues "pushing" higher education and academics towards a more deliberate social engagement and (II) as potential answers to the pressures universities and academics are faced with to become more relevant to society's complexity and needs, in addition to the traditional settings of teaching and research.

2 University Third Mission

2.1 An Introduction

Universities are asked to take on an important role concerning issues of economic growth, self-financing (by engaging in commercial activities), transferring research results to technology and industry, creating insights of direct relevance to social as well as sustainable development and better forms of political organisation and governance (Göransson et al. 2009). As Bennani (2008, in Escrigas and Lobera 2009) notes, such challenges require the world's educational systems to adopt new roles and readjust their traditional mission of both teaching and research.

There is an on-going debate about the need to develop a broader view of scholarship, especially regarded to the third mission or 'service' (see Boyer 1990; Paulsen and Feldman 1995; MacFarlane 2005; Greenbank 2006; Karlsson et al. 2007; Ledić 2007; Göransson et al. 2009). The debate makes it obvious that universities have to find a balance between a wide range of different roles and responsibilities. Teaching and research activities are central tasks, but universities and academics have been increasingly called upon to play a direct role in supporting regional and national economic development as well as to have a direct impact on society.

Universities have always contributed both directly and indirectly to the wider society. These tasks are thus not innovative in that sense. However, what differs in recent years is the intensified focus on the third mission activities in the context of extending traditional university settings of teaching and research for the purpose of local, regional and national development. An OECD report, The Response of Higher Education Institutions to Regional Needs (1999) identified a "new regionalism" as part of an emergent third role (mission) for higher education institutions. But what do we understand by 'university third mission'? Generally, it is the relationship between higher education and society beyond the first (teaching) and

second (research) missions, and the "new" role of universities as entrepreneurs and contributors to social and economic development.[6] The third mission issues explore the response of universities to this challenging call of answering different needs of various stakeholders and being in a far more relevant and deeper interaction with society. This call is, as Göransson et al. (2009) have illustrated, the result of mounting external and internal pressures on universities to re-define themselves in an increasingly competitive and globalizing world.

The discourse on university third mission takes on many directions. The main ones will be presented in detail in the subsequent chapters. There are three basic models currently elaborated in the literature: (I) third mission as an exclusive university contribution to economic development (dominated in literature as economic or technological third mission, strongly related to the innovations development), (II) third mission as university-community civic relationship (dominated in terminology as civic mission) and (III) third mission as an integrated concept making all three sectors—public, private, and non-profit relevant for the cooperation. These models can further differ regarding the placement of the third mission activities as the ones that are: (I) in addition to teaching and research, (II) tied and integrated within teaching and research or (III) a combination of the previous two. In addition, there is a division regarding partners with whom universities can perform third mission activities. Two main stakeholders arise—the societal partners and the ones from business/industry.

The implementation of the education for sustainable development in higher education institutions, regarded as one of the specific third mission aspect, is analysed within the discourse on sustainable university, and will be explained in more detail later on. It offers two basic models: (I) universities as institutions which need to address sustainable development issues—this involves their institutional change (characteristics of the sustainable university) and (II) universities as agents of change (known as the "whole-of-university" approach to sustainability). Both approaches emphasize the necessity for a curriculum change to address sustainability, which is one of the most important indicators of expanding research and teaching, since it is expected from academics to change the way they traditionally work.[7]

Having in mind the complex phenomenon of the third mission and how the integration of various third stream activities reflects upon the academics, it is important to 'find a proper place' for the issue of extending teaching and research within

[6] Jongbloed et al. (2008) point out the university mission overload stating how contemporary universities suffer from an acute case of mission confusion.

[7] The integration of sustainability within higher education implies a shift from transmissive learning to learning through discovery; from teacher-centered approach to learner-centered approach; from individual learning to collaborative learning; from learning dominated by theory to praxis-oriented learning which links theory and experience; from a focus on accumulating knowledge and a content orientation to a focus on self-regulative learning and real issue orientations; the emphasis on cognitive objectives only to cognitive, affective and skill-related objective; from institutional staff-based teaching/learning to learning with and from outsiders; from low-level cognitive learning to higher-level cognitive learning (Van den Bor et al. 2000, in Sterling 2004).

distinctive concepts of third mission, especially civic mission and education for sustainable development.

2.2 University Third Mission—Illuminating the Concept

With teaching and research as the two core and honoured activities, the 'third mission' becomes a rather illusive and fuzzy concept covering basically all other activities beyond the first two. The concept itself is strongly connected with the emerging regional development agenda (Chatterton and Goddard 2003). It requires university regional engagement to be formally recognized as a "third role" for universities, not only sitting alongside, but also fully integrated with the university pillars, teaching and research.

An often-used definition is that third mission activities represent those, which are concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside the academic environments. "In other words, the Third Stream (Mission) is about the interaction between universities and the rest of society" (Molas-Gallart et al. 2002, p. iii). The most controversial issue of university third mission, as will be introduced later in more detail, is to whom or to what 'the rest of society' actually refers to or, in other words, whose needs should the universities and academics address?

Within the PRIME project of an "Observatory of the European University" (OEU), the university's third mission encompasses the relations between a university and its non-academic partners. It is multifaceted, as it examines several issues of both the economic and societal dimensions of universities. It supersedes the sole transfer of knowledge towards economic actors (patents, licenses, spin-offs…) and public bodies, as well as university involvement in social and cultural life (Schoen et al. 2006, p. 129).

In "Engagement as a Core Value for the University," a consultation document released by the Association of Commonwealth Universities (ACU; 2001) points that university engagement with the non-university world implies "strenuous, thoughtful and argumentative interaction in at least four spheres: (I) setting universities' aims, purposes and priorities, (II) relating teaching and learning to the wider world, (III) dialogue between researchers and practitioners and (IV) taking on wider responsibilities as neighbours and citizens" (ACU 2001, p. i).

The analysis of the contemporary context in which universities operate, taking into account various countries with different economic, political and geographic features, led Göransson et al. (2009) to reveal an increasing demand for such activities, particularly with regard to technology transfer, but also to civil society in more general terms. However, there is little consensus on how to perform third mission activities and the interpretation of cooperative outreach functions varies considerably. Laredo (2007) points out that the third mission should be taken differently, depending on the configuration of university activities, upon its embedding in its geographical territory, and upon the country's institutional framework. The third

mission is vaguely defined and has been an on-going process (Bortagaray 2009), still searching for the broader and more intensive scientific discourse on how to find the appropriate balance between demands put upon universities.

University third mission, university third stream, university third revolution, university civic mission, extension, outreach, knowledge transfer, knowledge application, knowledge transmission, knowledge diffusion, service, community service, service to the society, community engagement, engaged university, community engaged university, university third task, or university third leg, are all different names (and concepts) actually pointing out the same—university reaching out to society at large through various kinds of linkages.

It was Boyer who opened the field of an on-going debate about the 'service' in his insightful call for the scholarship of service (Boyer 1990). A number of scholars who follow his work have been emerging both in the United States and in Europe (Checkoway 2001; Ostrander 2004; Macfarlane 2005; Harkavy 2006; Greenbank 2006; Karlsson 2007; Ledić 2007). Still, no consensus has been reached upon the question of serving whom?[8] The contribution of service to society is a complex phenomenon and not easy to pinpoint (Gregersen et al. 2009). It involves different stakeholders, a wide range of direct and indirect activities, and takes into account both direct and indirect effects of the third mission, as Gregersen et al. (2009) continue, its definition as well as the answer to the question of serving the needs of various stakeholders are even more blurred. Therefore, a coexistence of broader and narrowly defined approaches can be observed in the present discourse, since the third mission activities are perceived and implemented in different ways, depending on both internal and external factors influencing the university.

What the third role highlights is the increasing embeddedness of universities in their regions and their duty as responsible local, as well as national and international agents of change. For this reason, it is very important and relevant to analyse and compare how the third mission activities are explained and carried out as an input to needed clarification.

2.3 Third Mission Discourse and Models

2.3.1 Third Mission—University's Exclusive Relationship with Business/Industry

Although it is becoming more and more obvious that both the societal as well as the enterprise and technological (third) mission are highly relevant for university development, third mission is more often equated with knowledge transfer directly linked with the commercialisation of research (Thorn and Soo 2009; Krücken et al. 2009) related to the direct contributions of universities to economic development.

[8] For detailed and interesting observations on the issue, read Graham, G. (2002). *Universities: the recovery of an idea*. Charlottesville: Imprint Academic.

The international debate on the concept of the third mission, by Abramson et al. (1997, in Göransson et al. 2009) is mostly dominated by the US paradigm. Their spin-off enterprises and strong research commercialisation imply a real economic boom and the Bayh-Dole Act aims at an improved economic use of university knowledge through increased university patenting. The expected role of university as the main brain behind economic development is well elucidated in national policies[9] and important reports, such as the OECD report (2007) and the Communications from the European Commission (2003). New models are therefore being proposed to guide universities on their new path. They range from one labelled as Mode 2 knowledge production (Gibbons et al. 1994) to triple helix models involving private–public partnerships (Etzkowitz and Leydesdorff 1997) and the creation of entrepreneurial universities (Etzkowitz et al. 2000) more in line with supporting economic development of a country. Nevertheless, there is no universal model. Most of them ultimately suggest that the universities should move towards a technology-oriented third mission, making a closer interaction with enterprises.

The collaboration between university and industry has improved worldwide[10] (Mwamila and Diyamett 2009). There is a growing number of academics considering third mission activities exclusively as their contribution to innovation and economic growth, i.e. transfer of knowledge and technology through different modes of interacting and creating 'money-making' opportunities with the industry (Maculan and Carvalho de Mello 2009; Gokhberg et al. 2009; Krücken et al. 2009; Palsson et al. 2009; Etzkowitz and Leydesdorff 1997). The governments have prioritized and encouraged university–business cooperation, as an important step in building a knowledge-based economy. Largely in response to this policy orientation, universities have begun to take more focused actions to pursue industry linkages, spurred also by the need for additional resources (Wang and Zhou 2009; Fiskovica et al. 2009; Laredo 2007). Göransson et al. (2009) found the same while analysing the issue of third mission in 12 countries[11]: "…in many countries the official political documents ask for a closer connection of the universities with society, and in more detailed implementation rules it becomes obvious that the government is exclusively looking at more intensive technology transfer" (Göransson et al. 2009, p. 162).

Altbach (2008) warns that the market-oriented academic tendencies of the twenty-first century and the more popular corporate mission are reasons for concern because of the influences that contemporary changes have on university mission. By aiming at a closer collaboration with the industry and economy and by invest-

[9] According to Laredo (2007), a pilot study conducted by OECD at the end of the 1990s demonstrated that nearly all OECD countries have developed specific policies to nurture the creation of firms and promote their development: science or technology parks, incubators, incentives for academic staff to engage in commercial activities, etc.

[10] Faced with financing challenges, mostly because of the lack of state investments, universities are forced to find models of sustainability, making the tuition costs and public-private partnerships to rise (OECD 2004). Buchbinder (1993) warns about the financial reality and the surroundings in which universities operate, and shows a trend of survival by adjusting to the political economy characterized by global competition, contract business and efficiency.

[11] For further details see: Göransson et al. 2009.

ing more in serving the society though various sponsored research, universities are faced with new challenges in norms and values of the academic life.

2.3.2 Third Mission—University Civic Links with the Community

Universities have a wide range of roles, responsibilities, and activities and cut across different economic, political and social networks. There is no doubt that they make contributions to the government as well as the private sector. Nevertheless, contributions to civil society must not slip out. Universities not only add value to the economic performance but also help to improve the quality of life in communities and the effectiveness of public services. Any approach to university 'third stream' activities, which focus purely on university linkages with industry and commercial activities, argue Molas-Gallart et al. (2002) "is likely to miss large and important parts of the picture".

The social segment of the third mission, in literature usually called 'civic mission', articulates various university activities and academic civic engagement in local communities. There is a group of authors who claim that civic mission is actually the one and only university third mission (Harkavy 2006; Ostrander 2004; Checkoway 2001). Advocates of such a model emphasize that educating students to be constructive citizens in the democratic society, is essential for the development and preservation of democracy (Checkoway 2001; Harkavy 2006) and that universities should aim to improve the living conditions in local communities and develop democracy and civil society (Ostrander 2004).

Requests are being made to bring university teachers and practitioners into closer relationships, expecting academic knowledge to directly improve living conditions in local communities and affect democracy and civil society development (Ostrander 2004). Students should acquire knowledge, develop skills and opinions through active participation/civic engagement, which in turn develops their sense of social responsibility, as well their engagement on community-related issues. Pursuing that, academics turn to the academic service-learning model, as well as to variations of internships (e.g. social internship) or work placements (for example, in public and non-profit/civic work surroundings).

Most authors, academics and practitioners, agree that the purpose of student civic engagement is to educate them to be responsible and active citizens in the future, and engaged in all segments of everyday life. Professional knowledge and skills they acquire during their education is very important, for them personally, but also for the development of society, although by far not sufficient enough. They are (at least they should be) additionally expected to have certain values, motivation and commitment to the community and the enhancement of living conditions (Jacoby 2009). The authors agree that it is the purpose of university civic mission to enable the development of this ideal.

While ties with the industry are mostly worthwhile, at least indirectly through research funding, Krücken et al. (2009) note that links to civil society remain largely unrewarded in academia. As links to civil society cannot be mapped by standard

indicators, which dominate in measuring scientific excellence (such as peer-reviewed publications), there is a trend of avoiding 'distracting' activities (especially among the young scientists), such as this segment of the third mission appears to be (Krücken et al. 2009; Göransson et al. 2009; Ledić 2007). Macfarlane's (2005) findings suggested that third mission, or 'service' as he refers to it, is not regarded as something that gives professional credit—"There was a keen awareness among academics that service work suffers both a lack of status, and further, won't get you tenure, promotion or a pay rise" (Macfarlane 2005, p. 173).

2.3.3 Third Mission—Two Sides of the Same Coin

While there is a certain tension between the social and the economic (commercial) role of the university third mission, they should be treated as two sides of the same coin, since both are based on the need to communicate and cooperate more extensively with stakeholders beyond the academic community (Fiskovica et al. 2009). Although it is obvious that both the social as well as the commercial (technological) third mission are highly relevant, there is little consensus on how to perform third mission activities. Göransson et al. (2009) distinguish, for example, transfer and extension activities. The economic one relates to knowledge and research activities commercialised for the technology/industry sector. The second relates to various activities of social character.

For Krücken et al. (2009), the third mission activities refer to university direct contribution to economic development through the transfer of technology to industry, while they label heterogeneous ties to civic society as extension activities. Having in mind that university third mission in general covers activities focused on non-academic community, for Montesinos et al. (2008) it has at least three dimensions: (I) a non-profit—social approach, (II) an entrepreneurial focus and (III) an innovative approximation. While researching the issues of economic and social roles of universities in Latvia, Fiskovica et al. (2009) found that the third mission is treated differently by the exact and social scientists (with the distinction being made along the lines of the disciplinary particularities of "hard" and "soft" sciences featuring a certain bias towards either commercial or social aspects). The exact scientists refer to innovation, knowledge and technology transfer, commercialisation of research results and orientation towards the needs of the business sector. The social scientists are more in tune with the education of the nation, general culture function, influence on society and people's minds and a vision of the university to contribute to the enlightenment of the public and raising its educational and cultural level (Fiskovica et al. 2009).

It is important to notice that economic and social segments of the third mission activities do not always enjoy the same intensity. This intensity largely depends on the government and university strategy as well as clear policy framework. That is the reason the universities which aspire to develop stronger integration (and institutionalisation) of the third mission are faced with big challenges. In fact, the possibility of university teachers to adjust their roles to elements of third mission activities

has serious conceptual and practical problems considering that this task is constantly and unsuccessfully competing with the (primary) role of university professors as teachers and researchers (Bloomgarden and O'Meara 2007). Many projects have therefore been devoted to the identification, delineation and management of activities that are a part of the third mission (Molas-Gallart et al. 2002). A recent review project (Schoen et al. 2006) has proposed to gather third mission activities around eight dimensions—four economic and four social. In their report, Molas-Gallart et al. (2002) emphasize university's contribution to social and economic development through a wide range of activities that fall outside the direct commercialisation of university's research results. That is the reason the holistic approach to the assessment of third stream activities, aiming at considering the total contribution of universities to society rather than relying only on narrow indicators of commercialisation, is strongly advocated (Karlsson et al. 2007; Ledić 2007; Bloomgarden and O'Meara 2007; Greenbank 2006; Molas-Gallart et al. 2002; Boyer 1990).

2.3.4 Third Mission Activities—In Addition to or in Symbiosis with Teaching and Research?

The concept of the third mission, claim Göransson et al. (2009), encapsulates many of the raising demands put before the university and encompasses all university activities not covered by the first two missions—teaching and research. Having in mind the dominant thought that teaching and research are the only two roles the academic staff performs (Karlsson et al. 2007), it comes as no surprise that there is a great confusion among academics about what the third mission actually is.

According to Macfarlane (2005), there are five different interpretations among academics of what third mission activities are: (I) administration—taken negatively in general, with third mission activities seen as growing burdens on academics, (II) customer service for students and business organisations, (III) collegial virtue—as a moral obligation in supporting colleagues, (IV) civic duty as doing voluntary work or outreach for the benefit of the local community, not necessarily connected with scholarly expertise, and (V) integrated learning which connects academic study work and community based projects and internships, carried out by students and not the academic staff (e.g. academic service learning, social internships).

The placement of third mission activities in addition to teaching and research dominates the debate. There is a great number of authors contributing to this set of interpretations claiming that service to the society is practice-oriented engagement and cooperation with the surrounding community where all the activities must be performed outside the traditional box of teaching and research (Ngoc Ca 2009; Gregersen et al. 2009; Karlsson et al. 2007; Thorn and Soo 2009).

On the other side, there are authors talking about the importance of integrating this "holy trinity"[12] (Ledić 2007; Harkavy 2006; Ostrander 2004; Checkoway 2001). Laredo (2007), for example, questions the very notion of third mission

[12] For further details see: Göransson et al. 2009.

claiming that there exists a certain irony in discussing the need for universities to connect to the community, and in particular to the economy. The central role of universities, he continues, has long been to train students and to prepare them for professional activities they will later deploy. There is thus no logic in connecting entrepreneurial university with third mission. Instead of that, the connection should be made with the ability of scholars to develop new original teaching curricula and research projects, and to integrate them.

Bortagaray (2009) sees the role of the third mission in narrowing and blurring the boundaries between the inside and outside, between teaching and research. Greenbank (2006) argues for the integration of teaching, research and service as interconnected scholarly activities. A very interesting point has been raised by Karlsson (2007) who does not perceive service as a contribution solely executed in one way—from university to the community (as has been primarily advocated in the debate). What he wants to highlight is an urgent need for a holistic view of this scholarship to be developed, where the integration of collaboration, teaching and research would be seen as interdependent, rather than in hierarchy to one another.

In their final report to the Russell Group of Universities, Molas-Gallart et al. (2002) raised one additional issue, claiming that cooperation with non-academic community is what actually makes a set of third mission activities. They consider all three as core activities (teaching, research and communication of results) as well as possible third stream activities, if they are developed in cooperation with the non-academic actors. Jongbloed et al. (2008) talk about the mission overlap as being the basic problem of the third mission analysis. They claim that the third mission is not so much a mission of its own but rather a reflection of the unique stakeholders that fall outside of the traditional purview. In addition, they emphasize the difficulty of separating third mission activities from traditional teaching and research claiming they cannot be separated.

3 University Civic Mission

3.1 Background

Even though always up to date, it seems that the question of the basic purpose of the university has lately become the focal point of academic and professional debates all around the world. Some authors claim that universities have closed themselves too much, separated themselves from the community in which they function and from the problems that surround them. Their criticism goes so far to warn universities about their need to think about their common purpose and deal with main contemporary issues in order not to become socially irrelevant (Boyer 1990). Rapidly growing number of titles which reflect sharp criticism and public concern regarding university responsibility speak of a time that has come, a time of serious negotiations about the role universities have in society. They need to embrace their social responsibility and commitments that their total work make relevant in the at-

tempt to resolve current social problems (Edwards and Marullo 1999; Marullo et al. 2003; Escrigas 2008). They appeal to universities to take their intense preoccupation with the market, financial (self-)sustainability, enrolment quotas, rash publications, benchmarking policies, test and ranking and change it with the commitment to resolve real problems of the community, encourage education of socially sensitive and responsible students as well as to contribute to the development of civil society and democracy. Escrigas and Lobera (2009) are also very explicit in their vision and mission for the role of higher education in the future—"one needs to be clearly reoriented towards society's challenges, beyond the paradigm of the 'ivory-tower' or the market-oriented university, to reinvent an innovative and socially committed response that anticipates and adds value to the process of social transformation" (p. 7).

Along with the concern for the intensive market-orientation, critics draw attention to the issue of democratic deficit most of the countries, including the EU, are faced with. Educating students to be responsible and active citizens (Checkoway 2001; Harkavy 2006) and active citizenship is the ideal contemporary society should aspire to (McLaughlin 1995; Griffith 1998; Wilkins 1999; Heater 1999; Faulks 2000). Escrigas (2008) reminds that universities educate citizens of the future, who will build the social system for the future generations to inherit. Having in mind that the current education system is based on training competitive human resources, according to Escrigas and Lobera (2009) "it is appropriate to raise its evolution towards a system that could educate global citizens to be builders of inclusive, just and fair social systems, with ethical criteria, who can understand the reality from a holistic perspective and be prepared to act under trust and collaboration patterns" (p. 11). Universities therefore have to intensify their contribution to social development by educating active citizens who will be knowledgeable about the human and social condition, with ethical awareness and civic commitment (Ehrlich 2000; Escrigas 2008; Taylor 2008; Escrigas and Lobera 2009).

3.2 The Issue of University Civic Mission

Analysts and critics of higher education, as well as academics, have been giving more attention to the idea of university civic mission since the early 1980s. The debate about defining roles and relationships between the university and the community is as old as the first European (medieval) universities. However, the vast literature we have today still does not provide a clear, accurate and concise definition of the university civic mission. It is in fact an elusive concept, a concept that is often used in literature and practice, which is ambiguous and, as such, subject to subjective interpretation, which is why it is often equated with everything that has the prefix civil: civil society, civil sector, civic engagement. It is not uncommon to find this term used as a synonym for political and social component of the university, often in comparison with the moral and ethical values. In fact, the literature (mainly from the U.S. academic community) often states that encouraging civic engagement positively affects the moral development of students. Even though this is very important for

youth development, Ostrander (2004) warns that encouraging greater integration of the university civic mission in the core academic activities does not rest on the important role of the university, which is to discover and create new knowledge and teaching students. She claims that defining university civic engagement only in the area of ethical, moral development of students means condemning civic mission to a marginalised position. For the university civic engagement activities to be fully integrated, institutionalised and sustainable, they must be built on stable intellectual arguments, which will, within the university civic mission, define a strong educational role in the development of a new generation of moral, socially responsible and active citizens.

Ostrander (2004) believes that in the constellation of relations between universities and communities, university civic mission should be observed through: (I) teaching and learning, (II) curriculum transformation, (III) research priorities defined in cooperation with the community and based on current social problems and (IV) the production of new knowledge. Teaching students and their learning, besides the basic concepts of science, concerns the segment of student social responsibility and their engagement in the community. Curriculum transformation should follow this requirement and provide content and educational opportunities for learning and acquiring competence for active citizenship.

Harkavy (2006) points out that the definition of university civic mission is crucial, and educating students to be democratic, creative, caring, and constructive citizens of a democratic society is necessary for developing and preserving democracy. According to Ledić (2007), university civic mission presents efforts of the academic community conducted through research, teaching and active involvement of its members in the community, and directed towards improving the quality of life in the community and educating active and socially responsible citizens. For Checkoway (2001), the university civic mission includes, apart from preparing students for active participation in democracy and developing their knowledge for the improvement of community and society in general, the reflection and action on public dimensions of education. Ostrander (2004) sees the civic mission in basing academic knowledge on real-life conditions, connecting knowledge with practice, connecting the academic community with practice, improving the living conditions of local communities and developing democracy and civil society. He concludes by saying there is no correct definition of the civic mission. It depends on many factors: university tradition, specific problems in the community where the university operates and rapid institutional changes, to name just a few.

3.3 Civic Mission Integration—Challenges for the Academic Profession

The relationship between the traditional roles of university professors as researchers and teachers has become more complex in the past decade. This is due to a strong wave of described university third mission initiatives. Studies mainly indicate that

university professors, regardless of affiliation to scientific discipline, recognize the need for integration and synergy of their roles (Colbeck 1998, 2002; Neumann 1992, 1996). Achieving the balance of these roles frequently becomes the subject of research (Bess 1998; Menges 1999; Bloomgarden and O'Meara 2007; Kogan and Teichler 2007; Locke and Teichler 2007). The dynamic and changing demands university teachers are trying to respond to affect the distribution of their activities and basic tasks, at the same time demanding their increasing engagement (Rice et al. 2000; Kogan and Teichler 2007). University professors often carry out activities in addition to their regular workload, and perform roles, which, it seems, are neither formally employed nor responsible for, but which may also affect (important) dimensions of their (academic and professional) achievements (Bloomgarden and O'Meara 2007).

Several authors suggest that the institutionalisation of university civic mission and the contribution to the development of sustainable partnerships with the community requires a strong and long-term research as well as teaching connected with the community (Bringle and Hatcher 2000; Furco 2001; Lombardi 2001). Encouraging university professors to develop these activities requires the development of new and customized educational programmes with the emphasis on appropriate work methods as well as thinking about research projects based on community's needs. Today, all the more relevant encouragement of the strengthening of university social responsibility and integrating civic engagement of university professors and students within the basic tasks of teaching and research is an additional challenge universities must respond to (Ward 2003). When responding to them, the studies that point to serious compatibility of multidimensional roles and increased workload should certainly be taken into account (Bess 1998; Milem et al. 2000; Rice et al. 2000; Kogan and Teichler 2007; Locke and Teichler 2007).

The activities of the academic community in the segment of community work and encouraging civic engagement represent, among other things, a great organisational challenge (Holland 1999). Preparing, implementing and evaluating such teaching and research activities that meet multiple community as well as university needs, require specific knowledge and skills and, above all, the commitment of university professors. The expectations are more than purely broadening teaching and research. Academics who wish to integrate community service into their regular teaching and research activities are in fact expected to establish and manage partner (research) projects in the community. It is their responsibility to design and prepare unconventional teaching programmes, assignments and fieldwork activities that stimulate learning related to discipline, but also address problems in the community. Proper evaluation and documentation of their own work, and in particular the work of students and their progress, comes along as well. Parallel, academics should be thinking about rights, obligations and responsibilities of everyone involved in such a way that the benefits from the activities be equally distributed. This form of work requires fulfilling both the academic goals (of specific disciplines and university excellence criteria in all areas) and community goals in a way that could (or does not always have to) match the professional skills, personal priorities nor the priori-

ties of scientific disciplines, departments and the parent institution. This way often promotes interdisciplinary work.

The complexity of this way of understanding the role of university professors and acting in accordance with the described principles should be adequately evaluated as well. Boyer (1990) stresses that never before in history did the universities had to work on strengthening their connection with the community as they do today. He also emphasizes that the prerequisites for the advancement of university teachers, which he considers exceptionally inadequate, should be one of the mechanisms that would encourage such a shift. In fact, if through the advancement system and set prerequisites for tenure election only the traditional academic and scientific results are prioritized, compared to the usual results of activities of community service (reports, evaluations, presentations, situation analysis, public policy analysis, new curricula, plans for personal and professional development, project proposals, etc.), it is not realistic to believe that the university professors will be involved in such activities and generally promote university civic engagement (Boyer 1990; Braxton et al. 2002; Lynton 1995; O'Meara 2002). The authors therefore warn about the autonomy of university professors and emphasize that the decision about civic engagement depends mostly on their perception of the importance given to this activity in terms of their own academic advancement (Bloomgarden and O'Meara 2007; Ledić 2007).

4 New Demands Put Before the Academic Profession: Education for Sustainable Development

4.1 Short Overview on History and Approaches

Even though sustainable development as a paradigm causes controversy among scientists, and we can talk about several dozen different definitions of sustainable development, it is evident that our society needs adjustments for the world to develop in a sustainable direction. We see an increase in troublesome and warning scientific analyses from all over the world, which do not leave a lot of room for doubt when it comes to the necessity of fundamental changes in our society today (Cifrić 1997; IPCC 2007; Stephens et al. 2008). We can say that sustainable development in general represents a modified and responsible relationship towards the environment and society because it respects the needs of generations to come. For a serious understanding of the importance of the education for sustainable development we need a favourable social climate, and the knowledge of education for sustainable development deficit presupposes changes in the attitude not only in education policies but the whole society (Cifrić 2005). However, the educational system still does not accept ecological and social challenges, what can cause educational incompetence in the long run, as well as more serious consequences for future generations (Cifrić 2005). Therefore, pressures on higher education derive from part of the society concerned with sustainable development, because universities

and academics have a special responsibility for future development. The last two decades in particular show a continuity in publishing several documents and declarations on the national, European and international level, last being the Bonn Declaration (2009)—extremely relevant for universities all over the world (Lindberg 2010). It is necessary to encourage and implement education for sustainable development in the core academic activities and universities in general. Universities are also seen as agents in promoting these principles within society, and as institutions in need of a change themselves. In any case, universities and academics should and will in the future inevitably play crucial roles in promoting sustainability as well as the third mission activities through their core activities—teaching and research.

Education for sustainable development[13] was defined in 1992 on a UN conference in Rio de Janeiro when the Program for Action for Sustainable Development and the Agenda 21 were adopted. Agenda 21 involves three priorities: expansion of basic education to all children; reorientation of current education to embrace the concept of sustainable development and raising public awareness (Geiser 2006, p. 31). Since 1992, all UN conferences agreed that education was the driving force to achieve the necessary changes. The UNESCO report "Education for sustainability—from Rio to Johannesburg" gives an overview of lessons learned about the education for sustainable development (ESD) over a decade (1992–2002; UNESCO 2002).[14] The United Nations Decade of Education for Sustainable Development started in 2005, for which UNESCO is the lead agency. In the same year, the Economic Commission for Europe adopted the UNECE "Strategy for Education for Sustainable Development" in Vilnius, on a high-level meeting of Environment and Education Ministries.[15] The Article 19 of the Strategy states that "ESD is a lifelong

[13] A recommendation was given to expand the concept of "environment" ("environmental protection") to the concept of "sustainable development".

[14] The key lessons that have been learned about education for sustainable development: "Education for sustainable development is an emerging but dynamic concept that encompasses a new vision of education that seeks to empower people of all ages to assume responsibility for creating a sustainable future. Basic education provides the foundation for all future education and is a contribution to sustainable development in its own right. There is a need to refocus many existing education policies, programmes and practices so that they build the concepts, skills, motivation and commitment needed for sustainable development. Education is the key to rural transformation and is essential to ensuring the economic, cultural and ecological vitality of rural areas and communities. Lifelong learning, including adult and community education, appropriate technical and vocational education, higher education and teacher education are all vital ingredients of capacity building for a sustainable future" (UNESCO 2002, pp. 5–6).

[15] From UNECE Strategy for Education for Sustainable Development: "Education, in addition to being a human right, is a prerequisite for achieving sustainable development and an essential tool for good governance, informed decision-making and the promotion of democracy. Therefore, education for sustainable development can help translate our vision into reality. Education for sustainable development develops and strengthens the capacity of individuals, groups, communities, organizations and countries to make judgments and choices in favor of sustainable development. It can promote a shift in people's mindsets and in so doing enable them to make our world safer, healthier and more prosperous, thereby improving the quality of life. Education for sustainable development can provide critical reflection and greater awareness and empowerment so that new visions and concepts can be explored and new methods and tools developed" (UNECE Strategy for Education for Sustainable Development 2005, p. 1).

process from early childhood to higher and adult education and goes beyond formal education. Since learning takes place as we take on different roles in our lives, ESD has to be considered as a 'life-wide' process. It should permeate learning programmes at all levels, including vocational education, training for educators, and continuing education for professionals and decision makers" (UNECE Strategy 2005, p. 4).

Education for sustainable development becomes a priority, which requires curriculum changes, not only the transfer of knowledge. The increase of interest for this topic is visible from the analysis of the ERIC database where the results of a bibliometric study showed a total of 1,497 articles (in English) dealing with the education for sustainable development from more than a thousand authors from 304 institutions in 23 countries from 1990 to 2005 (Wright and Pullen 2007).

4.2 The Debate About the Term Education for Sustainable Development

There is much debate about the term sustainable development and education for sustainable development in the existing literature. Without the need to make a final and complete list it is possible to point out four terminological versions: (I) education for sustainable development, (II) education for a transition to sustainability, (III) sustainable education, and (IV) higher education for sustainability.

Education for sustainable development seeks to: increase environmental literacy; integrate social, economic and environmental values; focus globally and internationally; raise awareness of environmental limits and threats; build skills and capacity for analyses and intervention (Geiser 2006, p. 32). However, Geiser argues that ESD is mostly implemented in programmes that have remained campus-based and focused on college-enrolled students, so ESD has to move forward to education for a transition to sustainability that has to be integrated into the daily needs of professionals and activists. Education for a transition to sustainability is focused on the learner within the context of current and ongoing work and struggle. In other words, universities have the obligation to, by reaching out to currently active practitioners and activists, make available the resources of higher education institutions to those who need skills and knowledge because their daily struggles starkly reveal their need to know (Geiser 2006, p. 40).

The aims of sustainable education are directed towards the following (Salite 2002 in Slahova et al. 2007, p. 143): an ecological human being; retention of identity, culture and the environment; cognition of the world; awareness of sustainable development; education of a responsible and co-evolutionary character; and harmony in relationships. Higher education for sustainability, on the other hand, is not without strong foundations, as it draws on various disciplines including environmental education, policy analysis, higher education, management theory,

sociology, ecology, psychology and philosophy (Wright 2007). Higher education for sustainability (HES) research[16] differs from these traditional fields in two major ways.

HES research focuses on transcending disciplinary boundaries and integrating research from many sources and disciplines, interprets, adds context to, and explains research results from a new interdisciplinary perspective. Furthermore, HES research is applied and action-oriented, service related, combining theory and practice, and including both applied research and outreach (Wright 2007, p. 35). The results of a Delphi exercise used at the Halifax Consultation in which 35 experts representing 17 countries gathered to develop research priorities for the emerging field of higher education for sustainability showed 19 research theme areas, and at the end ten themes were thought to be the most important to further HES research:

- impacts of teaching and learning methods,
- university and community linkages,
- mainstreaming sustainability,
- institutional culture and organisational/governance structures,
- evaluating educational approaches,
- case study analysis,
- legitimizing HES research and practice, leadership and management,
- transformative learning,
- philosophy and epistemology in HES,
- disciplinarity, transdisciplinarity and interdisciplinarity (Wright 2007).

Finally, all the approaches mentioned demand and expect from the academics to change and expand their own approach to teaching and research to adequately respond to the social demands.

4.3 The Role of Higher Education in the Education for Sustainable Development

Education for sustainable development is a great challenge for universities and the academic profession, both with a great responsibility for the society and urged to answer these particular social needs. The role of higher education institutions in encouraging education for sustainable development is evidently crucial, because it educates people who will soon make new development decisions, and people who will soon educate younger generations. Sustainability is relevant for

[16] The published HES literature has focused on sustainability education; curriculum development; physical operations; HES policy analysis; assessment methodologies for HES initiatives; the development of theory; developing key competencies and learning outcomes (see Wright 2007 who provides extensive literature on these topics).

universities in many regards and at many levels: both at the micro-level and at the macro-level. At the micro-level, universities as sociotopic constructions with political implications and the macro-level looks at the higher education system as a political construct with sociotopic implications (Kehm and Pasternack 2000, p. 207, in Adomssent et al. 2008). Higher education is important to sustainable development for three main reasons: "one is the immediate interface with employers which allows students go where the sustainability issues faced by society are met on a daily basis (…) The second reason is the unique research remit of higher education institutions (…) The third reason is based on the premise that higher education institutions have direct links with business and the community where research could be disseminated, connections made, and social change brought about—all of which will be crucial to help society transform itself" (UNESCO 2009, p. 91).

Main directions of the discourse on sustainable university can be summed around two basic models: universities as institutions that need to address sustainable development issues and involve institutional change (characteristics of the "sustainable university") or universities as agents of change ("whole-of-university" approach to sustainability).

The first approach can be found in the work of Ferrer-Balas et al. (2008) and Svanstrom et al. (2008). For example, Ferrer-Balas et al. (2008), strongly support the approach in which universities need to address sustainable development issues in a way that institutional change is needed. Such "sustainable university" has the following characteristics: the emphasis is put on transformative education; a strong emphasis on effectively conducting interdisciplinary and transdisciplinary research and science; societal problem-solving orientation in education and research through an interaction of multiple stakeholders to be pertinent to societal goals; networks that can tap into varied expertise around the campus to efficiently and meaningfully share resources; leadership and vision that promotes needed change accompanied by proper assignment of responsibility and rewards, who are committed to a long-term transformation of the university and are willing to be responsive to society's changing needs (p. 296).

Furthermore, in parallel with the making of the Agenda 21, conferences on the sustainability issue were taking place. Also, different declarations that many universities have signed[17] have been developed. Those include: Talloires in 1990, Halifax

[17] Svanstrom et al. (2008) discussed the commonalities that can be found in learning outcomes for education for sustainable development in the context of the Tbilisi and Barcelona declarations. The commonalities include systemic or holistic thinking, the integration of different perspectives, skills such as critical thinking, change agent abilities and communication, and finally different attitudes and values.

in 1991, Copernicus[18] in 1994[19], Lüneburg in 2001, Graz in 2005[20], and Bonn in 2007. All these declarations have two things in common—universities need to address sustainable development issues and that will have to include institutional change. Scott and Gough (2007) relate such a change particularly to:

- how the university presents its role through vision and mission statements;
- how its estates and resource are managed;
- what (and how) it teaches its students;
- how that teaching is managed.

The second approach can be found in the work of McMillin and Dyball (2009) and Stephens et al. (2008). McMillin and Dyball (2009) argue that universities can optimize their role as agents of change with regard to sustainability by adopting a "whole-of-university" approach to sustainability. This approach explicitly links research, educational, operational and outreach activities and engages students in each. The benefits arising from pursuing a whole-systems approach to institutional sustainability are threefold: pedagogical, operational/reputational and capacity building. This can result in many positive benefits: including raising the profile of university's sustainability initiatives; providing solutions to sustainability problems; building trust among students, managers and academics; and providing meaningful learning experiences for students (McMillin and Dyball 2009). Escrigas (2008) also believes that it is necessary to articulate a sustainable model of university development, but not one which will nurture only the economical, or often misunderstood, ecological segment of social development, but a model which will need to equally take in consideration the human, social, cultural and economic aspects of democratic communities. Similar to the on-going debate, Gough and Scott's (2007, p. 1) main concern is a "proper place of sustainable development in what a university

[18] The Copernicus Declaration contains an action plan, which sums up the role of universities in ten principles: (1) institutional commitment; (2) environmental ethics; (3) education of university employees; (4) programmes in environmental education; (5) interdisciplinarity; (6) dissemination of knowledge; (7) networking; (8) partnerships; (9) continuing education programmes; (10) technology transfer.

[19] Very interesting analysis on the implementation of the Copernicus declaration in Aalborg University was written by Christensen et al. (2009), which stated that when seen from a present perspective, it seems that this policy was never really implemented. The reason for this is probably twofold: (1) the university never made sure that the proper policies and management system were in place to secure the involvement of all interested parties and communication only took place internally in the committee. (2) Environmentalism has been on the decline in Danish society for some years adding to the fact that it has been difficult to keep up the spirits in such activities (p. 16).

[20] This Declaration calls for the universities to allocate a fundamental status to sustainable development within their strategies and activities, promoting creative development and implementing comprehensive and integrated sustainable actions in relation to learning and teaching, research, and both internal and external societal responsibility. Furthermore, universities should cooperate with other higher education institutions and communities (Glavič and Lukman 2007, p. 104).

does, rather than the role of universities in implementing (any particular conception of) sustainable development". They propose a range of steps that universities can initiate and implement:

1. innovative, context-sensitive pedagogies;
2. cross-disciplinary research linked, when appropriate, to teaching and learning;
3. purposive design and management of network;
4. management of institutions that tolerates and encourages divergent approaches;
5. connective middle management "sustainable" forms of assessment (p. 169).

4.4 Drivers and Barriers in the Transformation of University and Academic Work

Ferrer-Balas et al. (2008), in their paper "An international comparative analysis of sustainability transformation across seven universities", identified, by comparing the strategies of seven universities world-wide, the key aspects of the transformation of universities towards sustainability as well as the drivers and barriers in the transformation. We can find different identifications of key characteristics in the literature (cited by Ferrer-Balas et al. 2008), as there are many barriers to transforming institutions into sustainable universities.

Potential barriers (internal and external) are recognized in the following:

- freedom of individual faculty members;
- incentive structure (salaries, promotions, and granting of tenure) that does not recognize faculty contributions to sustainable development;
- lack of desire to change, and
- pressure from society (Ferrer-Balas et al. 2008, p. 297).

On the other side, certain drivers (internal and external) are likely to emerge:

- internal: visionary leadership; sustainability champions, often seen as "lone wolves" or "innovators" (Lozano 2006) at their universities, can be important agents of change; connectors refer to existing networks of people such as interdisciplinary research groups that reach across the university to include a critical mass of campus actors; size (small universities, less than 10,000), the existence of a coordination unit or project for the sustainability transformation.
- External: pressure from peer institutions or top-tier universities can serve as examples to promote change; sources of funding and employment availability (Ferrer-Balas et al. 2008).

The UK Higher Education Academy also lists barriers and solutions for a successful implementation of ESD in many disciplines in higher education (HEA 2005, p. 5). An overcrowded curriculum can be overcome with creation of space through a rigorous review of existing curricula. The perceived irrelevance by academic staff

can be altered with development of credible teaching materials, which are fully contextualised and relevant to each subject area.

Some approaches and strategies to overcome the typical barriers to change are also presented by Lozano (2006) and can be grouped into three levels: (1) resistance to the idea of SD itself; (2) resistance to involving deeper issues; and (3) deeply embedded resistance to change (in Lozano-Garcia et al. 2008). Therefore, efforts of higher education institutions to respond to challenges of sustainability must begin "with an honest institutional assessment of the obstacles they face": what is a necessary first step toward the change and a way of assessing the limits of institution to respond to the challenge of sustainability? (Viederman 2006, pp. 20–21). For university to change its profile of teaching and research in accordance with sustainable development, two prerequisites must be met. The teacher must be willing to modify his/her area of expertise in relation to ecological issues and principles of sustainable development what represents a change in the way they design, teach and assess and it is necessary to establish new jobs, define job descriptions differently and create incentives for research and education in the area (Kuckartz 1997, p. 18; de la Harpe and Thomas 2009). Recent research of de la Harpe and Thomas (2009) on academic attitudes showed conditions needed to be met to influence curriculum change at universities:

- Identify a core group of staff willing to work together to lead and oversee the curriculum development and change initiative and to convince others that change is necessary;
- work with others to ensure that a vision was agreed collaboratively or that a project or programme brief was developed to guide the intended change;
- sufficient resources available;
- implementation strategy;
- staff's professional development;
- administrative systems and structures;
- a monitoring programme communicated often and rewarded along the way (p. 83).

Many universities are trying to implement curriculum change. However, up to date reports suggest that broad-ranging curriculum change has not been yet achieved by any university as there are many barriers to transforming institutions into sustainable universities (cf. de la Harpe and Thomas 2009, p. 76). A possible reason why universities do not encourage or implement ESD can be found in the following: the culture of universities makes it difficult for fundamentally different views to prevail or even be fully addressed (Viederman 2006). Since ESD implies interdisciplinary and/or transdisciplinary approaches, many academics find it hard to see "outside the box" and feel more comfortable to stay within the boundaries of their own discipline. In education this means that institutions of higher learning must move beyond the narrowly defined, discipline-specific model that has characterized the modern university over the last 150 years (Koester et al. 2006, p. 41).

5 Key Challenges and Research Questions

As universities are called upon to become more relevant to the society, more in tune with contemporary problems, socially relevant and accountable to the public, they face an increased scale of expectations from a various range of stakeholders. Those stakeholders place new demands upon universities, creating a pressure on higher education institutions and academics to contribute more to the economic development and to have a stronger impact on society. In an attempt to answer those pressures, universities and academics are broadening their settings and engaging in various (off-campus) activities. Those activities have brought tremendous challenges for the traditional roles of the academics, structures of their activities, and values. Contemporary universities face a great challenge of finding a balance between a wide range of different expectations, roles and responsibilities.

We have analysed teaching and research extension phenomena within the discourse on the university third mission and have tried to indicate its complexity by presenting the concepts developed so far, focusing on two particularities—university civic mission and education for sustainable development. Between the concept of being the mission of its own and the concept of being a reflection of various stakeholders' expectations set before the traditional teaching and research, third mission phenomena face many conceptual challenges.

Bearing in mind the importance of establishing deeper interactions with society, implementing (third mission) activities is found crucial for contemporary universities (Göransson et al. 2009). However, the ideas and concepts about the third mission that vary considerably, warnings about the mission overlap (Laredo 2007; Jongbloed et al. 2008), the confusion among the academics about what the third mission actually stands for (Macfarlane 2005), warnings about the additional work that has been put on the academics (Cummings 2006), and last, but not least, the absolute absence of a rewarding structure for engaging in such activities (Boyer 1990; Bloomgarden and O'Meara 2007; Ledić 2007), all call for re-framing of existing (presented) concepts as well as for the development of new ones for future study on broadening teaching and research.

In order to further explore the concepts presented here and to empirically investigate the tendencies suggested in this paper, research questions are proposed for tackling some of the emerging issues of the third mission (civic mission in particular and education for sustainable development).

1. How do academics relate to the current (internal and external) pressures associated with extending of the traditional teaching and research? Do they accept the new expectations or resist them by thinking it questions the core academic activities?
2. Do academics prioritize different stakeholders in their regions, and their expectations? If so, which stakeholders do they personally prioritize—economic or public? How do they perceive and differentiate the demands from private/economic and public/civic stakeholders?

3. Do academics place the extending activities in addition to teaching and research (third mission) or advocate the integration and readjustment of the traditional teaching and research?
4. Does the current rewarding structure recognize extended (third mission/service) activities?
5. What are the functional and structural stimuli that higher education institutions may create to promote university civic engagement, integration of the concept of civic mission and the education for sustainable development?

By identifying these research questions we hope to contribute to the future systematic research on the university linkages and deeper interaction with the community and society at large. We are aware of the need for more research in this important area, especially having in mind strong criticism and continuous rising of expectations put before universities.

References

Abramson, H. N., Encarnação, J., Reid, P. P., & Schmoch, U. (1997). *Technology transfer systems in the United States and Germany – lessons and perspectives*. Washington, D.C.: National academy press.

Adomssent, M., Godemann, J., & Michelsen, G. (2008). *Sustainable university—empirical evidence and strategic recommendations for holistic transformation approaches to sustainability in higher education institutions*. Proceedings of the 4th International Barcelona Conference on Higher Education (Vol. 7). Higher education for sustainable development. Barcelona: GUNI. http://www.guni-rmies.net.

Altbach, P. (2008). *The complex roles of universities in the period of globalization. In Global University Network for Innovation (GUNI), Higher Education in the World 3. Higher education: new challenges and emerging roles for human and social development* (pp. 5–14). Basingstoke: Palgrave Macmillan.

Association of Commonwealth Universities (ACU). (2001). *Engagement as a core value for the university: a consultation document*. London: ACU.

Bender, T. (1997). *Intellect and public life: essays on the social history of academic intellectuals in the United States*. Baltimore: Johns Hopkins University Press.

Bess, J. L. (1998). Teaching well: do you have to be schizophrenic? *The Review of Higher Education, 22*(1), 1–15.

Bloomgarden, A. H., & O'Meara, K. A. (2007). Faculty role integration and community engagement: harmony or cacophony? *Michigan Journal of Community Service Learning, 13*(2), 5–18.

Bortagaray, I. (2009). Bridging university and society in Uruguay: perceptions and expectations. *Science and Public Policy, 36*(2), 115–119.

Boyer, E. L. (1990). *Scholarship reconsider: priorities of the professoriate*. Stanford: The Carnegie Foundation for the Advancement of Teaching.

Braxton, J., Luckey, W., & Helland, P. (Eds.). (2002). *Institutionalizing a broader view of scholarship through Boyer's four domains* (ASHE-ERIC Higher Education Report, 29(2)). San Francisco: Jossey-Bass.

Brennan, J. (2006). *The changing academic profession: the driving forces.Reports of changing academic profession project workshop on quality, relevance, and governance in the changing academia: international perspectives* (pp. 37–44). Hiroshima: Research Institute for Higher Education, Hiroshima University.

Brennan, J., King, R., & Lebeau, Y. (2004). *The role of universities in the transformation of societies*. London: Association of Commonwealth Universities and Centre for Higher Education Research and Information.

Bringle, R. G., & Hatcher, J. A. (2000). Institutionalization of service learning in higher education. *The Journal of Higher Education, 71*(3), 273–290.

Buchbinder, H. (1993). The market oriented university and the changing role of knowledge. *Higher Education, 26*(3), 331–347.

Calhoun, C. (2006). The university and the public good. *Thesis Eleven, 84*(1), 7–43.

Chatterton, P., & Goddard, J. B. (2003). The response of higher education institutions to regional needs. In R. Rutten, F. Boekama, & E. Kuijpers (Eds.), *Economic geography of higher education: knowledge, infrastructure and learning regions* (pp. 19–41). London: Routledge.

Checkoway, B. (2000). Public service: our new mission. *Academe, 86*(4), 24–28.

Checkoway, B. (2001). Renewing the civic mission of the American Research University. *The Journal of Higher Education, 72*(2), 125–147.

Christensen, P., Thrane, M., Herreborg Jørgensen, T., & Lehmann, M. (2009). Sustainable development. Assessing the gap between preaching and practice at Aalborg University. *The International Journal of Sustainability in Higher Education, 10*(1), 4–20.

Cifrić, I. (1997). *Napredak i Opstanak*. Zagreb: Hrvatsko Sociološko Društvo—Zavod za Sociologiju Filozofskog Fakulteta Sveučilišta u Zagrebu.

Cifrić, I. (2005). Ekološka edukacija. *Filozofska istraživanja, 25*(2), 327–344.

Clark, B. R. (1998). *Creating Entrepreneurial Universities: Organizational pathways of transformation. Issues in higher education*. New York: Elsevier Science Regional Sales.

Clark, B. R. (2004). *Sustaining change in universities: continuities in case studies and concepts*. Maidenhead: Open University Press.

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

Colbeck, C. L. (2002). Integration: evaluating faculty work as a whole. *New Directions for Institutional Research, 114,* 43–52.

Cummings, W. K. (2006). *The third revolution of higher education: becoming more relevant. Reports of changing academic profession project workshop on quality, relevance, and governance in the changing academia: international perspectives* (pp. 209–222). Hiroshima: Research Institute for Higher Education, Hiroshima University.

Harpe, B. de la, & Thomas, I. (2009). Curriculum change in universities: conditions that facilitate education for sustainable development. *The Journal of Education for Sustainable Development, 3*(1), 75–85. http://jsd.sagepub.com. Accessed 13 Oct 2009.

Edwards, B., & Marullo, S. (1999). Editors' introduction: universities in troubled times—institutional responses. *American Behavioral Scientist, 42*(5), 754–765.

Ehrlich, T. (Ed.). (2000). *Civic responsibility and higher education*. Westport: American Council on Education/Oryx Press.

Escrigas, C. (2008). *Foreword. Global University Network for Innovation (GUNI), Higher education in the World 3. Higher education: new challenges and emerging roles for human and social development* (pp. xxviii–xxxi). Basingstoke: Palgrave Macmillan.

Escrigas, C., & Lobera, J. (2009). *Introduction: new dynamics for social responsibility. Global University Network for Innovation (GUNI), Higher education at a time of transformation—new dynamics for social responsibility* (pp. 1–19). New York: Palgrave Macmillan.

Etzkowitz, H. (2001). The second academic revolution and the rise of entrepreneurial science. *Technology and Society Magazine, IEEE, 20*(2), 18–29.

Etzkowitz, H., & Leydesdorff, L. (Eds.). (1997). *Universities and the global knowledge economy: a triple-helix of university-industry-government relations*. London: Cassell Academic.

Etzkowitz, H., Webster, A., & Healey, P. (1998). *Capitalizing knowledge: new intersections of industry and academia*. New York: State University of New York Press.

Etzkowitz, H., Webster, A., Gebhardt, C., & Terra, B. (2000). The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research Policy, 29*(2), 313–330.

European Commission (EC). (2003). The role of the universities in the Europe of knowledge. Communication from the Commission, Brussels, 05 Feb 2003, COM, 58 final.

European Commission (EC). (2007). Promoting young people's full participation in education, employment and society. Communication from the Commission, Brussels, 5 Sept 2007, COM, 498 final.

Faulks, K. (2000). *Citizenship*. London: RoutledgeFalmer.

Ferrer-Balas, D., Adachi, J., Banas, S., Davidson, C. I., Hoshikoshi, A., Mishra, A., Motodoa, Y., Onga, M., & Ostwald, M. (2008). An international comparative analysis of sustainability transformation across seven universities. *The International Journal of Sustainability in Higher Education, 9*(3), 295–316.

Fiskovica Adamsone, A., Kristapsons, J., Tjunina, E., & Ulnicane-Ozolina, I. (2009). Moving beyond teaching and research: economic and social tasks of universities in Latvia. *Science and Public Policy, 36*(2), 133–137.

Furco, A. (2001). Advancing service learning at research universities. *New Directions for Higher Education*, *114*, 67–78.

Geiger, R. L. (2004). *Knowledge and money: research universities and the paradox of the marketplace*. Stanford: Stanford University Press.

Geiser, K. (2006). Education for a transition to sustainability. In R. Forrant & L. Silka (Eds.), *Inside and out: universities and education for sustainable development* (pp. 29–40). New York: Baywood.

Gibbons, M. (1999). Science's new social contract with society. *Nature, 402*(6761), C81–C84.

Gibbons, M., Limoges, C., Nowotny, H., Schwartmann, S., Scott, P., & Trow, M. (1994). *The new production of knowledge: the dynamics of science and research in contemporary societies*. London: Sage.

Glavič, P., & Lukman, R. (2007.) Review of sustainability terms and their definitions. *Journal of Cleaner Production, 15*(18), 1875–1885. http://www.sciencedirect.com/. Accessed 15 Oct 2009.

Gokhberg, L., Kuznetsova, T., & Zaichenko, S. (2009). Towards a new role of universities in Russia: prospects and limitations. *Science and Public Policy, 36*(2), 121–126.

Golde, C. M., & Pribbenow, D. A. (2000). Understanding faculty involvement in residential learning communities. *Journal of College Student Development, 41*(1), 27–40.

Göransson, B., Maharajh, R., & Schmoch, U. (2009). New activities of universities in transfer and extension: multiple requirements and manifold solutions. *Science and Public Policy, 36*(2), 157–164.

Gough, S., & Scott, W. (2007). *Higher education and sustainable development: paradox and possibility*. London: Routledge.

Graham, G. (2002). *Universities: the recovery of an idea*. Charlottesville: Imprint Academic.

Greenbank, P. (2006). The academic's role: the need for a re-evaluation? *Teaching in Higher Education, 11*(1), 107–112.

Gregersen, B., Tved Linde, L., & Gulddahal Rasmussen, J. (2009). Linking between Danish Universities and Society. *Science and Public Policy, 36*(2), 151–156.

Griffith, R. (1998). *Educational citizenship and independent learning*. London: Jessica Kingsley.

Harkavy, I. (2006). The role of universities in advancing citizenship and social justice in the 21st century. *Education, Citizenship and Social Justice, 1*(1), 5–37.

Heater, D. (1999). *What is citizenship?* Cambridge: Polity.

Higher Education Academy. (2005). *Sustainable development in higher education: current practice and future development*. New York: Higher Education Academy.

Holland, B. A. (1999). Factors and strategies that influence faculty involvement in public service. *Journal of Public Service and Outreach, 4*(1), 37–43.

Hollander, E. L., & Saltmarsh, J. (2000). The engaged university. *Academe, 86*(4), 29–32.

IPCC. (2007). IPCC Fourth Assessment Report: Climate Change 2007: Synthesis Report. http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf. Accessed 26 Nov 2008.

Jacoby, B. (2009). *Civic engagement in higher education: concepts and practices*. San Francisco: Jossey-Bass.

Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: interconnections, interdependencies and a research agenda. *Higher Education, 56*(3), 303–324.
Karlsson, J. (2007). Service as collaboration—an integrated process in teaching and research: a response to Greenbank. *Teaching in Higher Education, 12*(2), 281–287.
Karlsson, J., Booth, S., & Odenrick, P. (2007). Academics' strategies and obstacles in achieving collaboration between universities and SMEs. *Tertiary Education and Management, 13*(3), 187–201.
Kehm, B. M., & Pasternack, P. (2000). *Hochschulentwicklung als Komplexitätsproblem. Fallstudien des Wandels*. Weinheim: Beltz.
Koester, R. J., Eflin, J., & Vann, J. (2006). Greening of the campus: a whole-systems approach. *Journal of Cleaner Production, 14*(9/11), 769–779.
Kogan, M., & Teichler, U. (Eds.). (2007). *Key challenges to the academic profession* (Werkstattberichte, Vol. 65). Kassel: International Centre for Higher Education Research Kassel (INCHER Kassel) and UNESCO Forum on Higher Education, Research and Knowledge.
Krücken, G., Meier, F., & Müller, A. (2009). Linkages to the society as "Leisure Time Activities"? Experiences at German universities. *Science and Public Policy, 36*(2), 139–144.
Kuckartz, U. (1997). Ekologizacija Visokog Školstva. *Socijalna ekologija, 6*(1–2), 1–22.
Laredo, P. (2007). Revisiting the third mission of universities: toward a renewed categorization of university activities? *Higher Education Policy, 20*(4), 441–456.
Ledić, J. (2007). U Potrazi za Civilnom Misijom Hrvatskih Sveučilišta. In V. Previšić, N. N. Šoljan, & N. Hrvatić (Eds.), *Pedagogija—Prema Cjeloživotnom Obrazovanju i Društvu Znanja* (pp. 123–134). Zagreb: Hrvatsko Pedagogijsko Društvo.
Lindberg, C. (2010). Universities are key agents for promoting sustainable development. GUNI Newsletter. http://web.guni2005.upc.es/interviews/detail.php?chlang=en&id=1522. Accessed 24 Feb 2010.
Locke, W., & Teichler, U. (Eds.). (2007). *The changing conditions for academic work and careers in select countries* (Werkstattberichte, Vol. 66). Kassel: International Centre for Higher Education Research Kassel (INCHER-Kassel).
Lombardi, J. (2001). Quality engines: the strategic principles for competitive universities in the twenty-first century. The Center Reports. http://jvlone.com/UCV_ENG_1a.pdf. Accessed 03 Feb 2009.
Lozano, R. (2006). Incorporation and institutionalization of SD into universities: breaking through barriers to change. *Journal of Cleaner Production, 14*(9–11), 787–796. http://www.sciencedirect.com/. Accessed 02 Nov 2009.
Lozano-Garcıa, F. J., Gandara, G., Perrni, O., Manzano, M., Hern, D. E., & Huisingh, D. (2008). Capacity building: a course on sustainable development to educate the educators. *The International Journal of Sustainability in Higher Education, 9*(3), 257–281. http://www.esmeraldinsight.com/1467-6370. Accessed 24 Oct 2009.
Lucas, C. J. (1994). *American higher education*. New York: St. Martin's Griffin.
Lynton, E. (1995). *Making the case for professional service*. Washington, DC: American Association for Higher Education.
Mac Labhrainn, I. (2005). *Reinvigorating the civic mission of the university*. Galway: Centre for Excellence in Learning and Teaching, National University of Ireland.
Macfarlane, B. (2005). Placing service in academic life. In R. Barnett (Ed.), *Reshaping the university: new relations between research, scholarship and teaching* (pp. 165–177). Berkshire: Open University Press.
Maculan, A. M., & Carvalho de Mello, J. M. (2009). University start-ups breaking lock-ins of the Brazilian economy. *Science and Public Policy, 36*(2), 109–114.
Maloney, W. A., & Deth, J. van. (Eds.). (2008). *Civil society and governance in Europe: from national to international linkages*. Cheltenham: Edward Elgar.
Marullo, S., Cooke, D., Willis, J., Rollins, A., Burke, J., Bonilla, P., & Waldref, V. (2003). Community-based research assessments: some principles and practices. *Michigan Journal of Community Service Learning, (Spring), 9*(3) 57–68.

McLaughlin, M. (1995). *Employability skills profile: what are employers looking for?* Report 81-92-E. Ottawa: Conference Board of Canada. http://www.ericdigests.org/1997-2/sills.htm. Accessed 25 Mar 2008.

McMillin, J., & Dyball, R. (2009). Developing a whole-of-university approach to educating for sustainability: linking curriculum, research and sustainable campus operations. *Journal of Education for Sustainable Development, 3*(1), 55–64. http://jsd.sagepub.com. Accessed 13 Oct 2009.

Menges, R. J. (Eds.). (1999). *Faculty in new jobs: a guide to settling in, becoming established, and building institutional support*. San Francisco: Jossey-Bass.

Milem, J. F., Berger, J. B., & Dey, E. L. (2000). Faculty time allocation. *The Journal of Higher Education, 71*(4), 454–475.

Molas-Gallart, J., Salter, A., Patel, P., Scott, A., & Duran, X. (2002). *Measuring third stream activities*. Final Report to the Russell Group of Universities, SPRU, University of Sussex.

Montesinos, P., Carot, J. M., Martinez, J. M., & Mora, F. (2008). Third mission ranking for world class universities: beyond teaching and research. *Higher Education in Europe, 33*(2/3), 259–271.

Morshidi, S., Zain, A. N. M., & Yunus, A. S. M., et al. (2007). Malaysia: New and diversified roles and responsibilities for academics. In W. Locke & U. Teichler (ed.). *The changing conditions for academic work and careers in selected countries* (pp. 147–162). Kassel: International Centre for Higher Education Research Kassel, University of Kassel.

Mwamila, B. L. M., & Diyamett, B. D. (2009). Universities and socio-economic development in Tanzania: public perceptions and realities on the ground. *Science and Public Policy, 36*(2), 85–90.

National Commission on Civic Renewal. (1998). A nation of spectators: how civic disengagement weakens America and what we can do about it—final report. http://www.puaf.umd.edu/Affiliates/CivicRenewal. Accessed 14 Jan 2009.

Nayyar, D. (2008). Globalization: what does it mean for higher education? In L. E. Weber & J. D. Duderstadt (Eds.), *The globalization of higher education* (pp. 3–14). Paris: Economica.

Neumann, R. (1992). Perceptions of the teaching-research nexus: a framework for analysis. *Higher Education, 23*(2), 159–171.

Neumann, R. (1996). Researching the teaching-research nexus: a critical review. *Australian Journal of Education, 40*(1), 5–18.

Ngoc Ca, T. (2009). Reaching out to society: Vietnamese universities in transition. *Science and Public Policy, 36*(2), 91–95.

OECD. (2004). *Public-private partnerships for research and innovation: an evaluation of the Dutch experience*. Paris: OECD. http://www.oecd.org/dataoecd/49/18/25717044.pdf. Accessed 16 Jan 2009.

OECD. (2007). *Higher education and regions: globally competitive, locally engaged*. Paris: OECD.

O'Meara, K. A. (2002). Uncovering the values in faculty evaluation of service as scholarship. *Review of Higher Education, 26*(1), 57–80.

O'Meara, K., Kaufman, R. R., & Kuntz, A. M. (2003). Faculty work in challenging times: trends, consequences and implications. *Liberal Education, 89*(4), 16–23. http://www.aacu.org/liberaleducation/le-fa03/le-fa03feature2.cfm. Accessed 03 Feb 2009.

Ordorika, I. (2009). *Commitment to society: contemporary challenges for public research universities. Global University Network for Innovation (GUNI), Higher education at a time of transformation—new dynamics for social responsibility* (pp. 72–74). New York: Palgrave Macmillan.

Ostrander, S. (2004). Democracy, civic participation, and the university: a comparative study of civic engagement on five universities. *Nonprofit and Voluntary Sector Quarterly, 33*(1), 74–93.

Palsson, C. M., Göransson, B., & Brundenius, C. (2009). Vitalizing the Swedish university system: implementation of the third mission. *Science and Public Policy, 36*(2), 145–150.

Parker, M., & Jary, D. (1995). The McUniversity: organisations, management and academic subjectivity. *Organization, 2*(2), 319–338.

Paulsen, M., & Feldman, K. (1995). Towards a reconceptualization of scholarship. A human action system with functional imperatives. *The Journal of Higher Education, 66*(6), 615–640.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy, 6*(1), 65–78.

Readings, B. (1996). *The university in ruins*. Massachusetts: Harvard University Press.

Rice, E. R., Sorcinelli, M. D., & Austin, A. (2000). *Heeding new voices: academic careers for a new generation. New pathways: faculty careers and employment for the 21st century, inquiry #7.* Washington, DC: American Association for Higher Education.

Rosenthal, R., & Wittrock, B. (1993). *The European and American universities since 1800: historical and sociological essays*. Cambridge: Cambridge University Press.

Šalaj, B. (2002). Modeli Političkoga Obrazovanja u Skolskim Šustavima. Unpublished master thesis, Fakultet političkih znanosti Sveučilišta u Zagrebu, Zagreb.

Schoen, A. (Ed.). (2006). Strategic Management of University Research Activities, Methodological Guide—PRIME Project 'Observatory of the European University.' http://www.enid-europe.org/PRIME/documents/OEU_guide.pdf. Accessed 09 Nov 2009.

Schroeder, C. C. (1999). Partnerships: an imperative for enhancing student learning and institutional effectiveness. *New Directions for Student Services, 87,* 5–18.

Scott, J. C. (1992). *The influence of the Medieval University on the Latin Church and Secular Government Politics*. San Francisco: Mellen Research University Press.

Scott, J. C. (2006). The mission of the university: medieval to postmodern transformations. *The Journal of Higher Education, 77*(1), 1–39.

Scott, W., & Gough, S. (2007). Universities and sustainable development: the necessity for barriers to change. *Perspectives: Policy and Practice in Higher Education, 11*(4), 107–115. http://search.ebscohost.com/. Accessed 23 Jan 2010.

Sirat, M. (2007). Forging university-industry links: implications for knowledge transfer in developing countries. *Updates on Global Higher Education, Institut Penyelidikan Pendidikan Tinggi Negra (iPPTN)*, No. 11, July 14, 2007.

Slahova, A., Savvina, J., Cacka, M., & Volonte, I. (2007). Creative activity in conception of sustainable development education. *The International Journal of Sustainability in Higher Education, 8*(2), 142–154. http://www.esmeraldinsight.com/1467-6370. Accessed 24 Oct 2009.

Slaughter, S., & Leslie, L. L. (1997). *Academic capitalism: politics, policies, and the entrepreneurial university*. Baltimore: Johns Hopkins University Press.

Stephens, J. C., Hernandez, M. E., Roman, M., Graham, A. C., & Scholz, R.W. (2008). Higher education as a change agent for sustainability in different cultures and contexts. *The International Journal of Sustainability in Higher Education, 9*(3), 317–338. http://www.ebscohost.com. Accessed 24 Oct 2009.

Sterling, S. (2004). An analysis of the development of sustainability education internationally: evolution, interpretation and transformative potential. In J. Blewitt & C. Cullingford (Eds.), *The sustainability curriculum—the challenge for higher education* (pp. 43–62). UK: Earthscan.

Svanstrom, M., Lozano-Garcia, F. J., & Rowe, D. (2008). Learning outcomes sustainable development in higher education. *International Journal of Sustainability is in Higher Education, 9*(3), 339–351. http://www.sciencedirect.com/. Accessed 24 Oct 2009.

Taylor, P. (2008). Higher education curriculum for human and social development: filling a pail, or lighting a fire? http://www.slideshare.net/guni_rmies/session-1-peter-taylor. Accessed 23 Jan 2009.

Teichler, U. (1996). The conditions of the academic profession—an international, comparative analysis of the academic profession in Western Europe, Japan and the USA. In P. A. M. Maassen & F. A. Vught van (Eds.), *Inside academia—new challenges for the academic profession* (pp. 15–65). Utrecht: De Tijdstroom.

Thorn, K., & Soo, M. (2009). Latin American universities and the third mission: trends, challenges and policy options, World Bank Policy Research, Working Paper 4002.

UNECE. (2005). UNECE strategy for education for sustainable development. http://www.unece.org/env/documents/2005/cep/ac.13/cep.ac.13.2005.3.rev.1.e.pdf. Accessed 10 Oct 2006.

UNESCO. (2002). Education for sustainability from Rio to Johannesburg: lessons learnt from a decade of commitment. http://unesdoc.unesco.org/images/0012/001271/127100e.pdf. Accessed 24 Oct 2009.

UNESCO. (2009). World Conference on Education for Sustainable Development: 31 March–2 April 2009, Bonn, Germany Proceedings. http://www.esd-world-conference-2009.org/fileadmin/download/ESD2009ProceedingsEnglishFINAL.pdf. Accessed 24 Feb 2010.

Vabø, A. (2007). Challenges of internalization for the academic profession in Norway. In M. Kogan & U. Teichler (Eds.), *Key challenges to the academic profession* (Werkstattberichte, Vol. 65, pp. 99–107). Kassel: International Centre for Higher Education Research Kassel (INCHER Kassel) and UNESCO Forum on Higher Education, Research and Knowledge.

Van den Bor, W., Holen, P., Wals, A., & Filho, W. (2000). *Integrating concepts of sustainability into education for agriculture and rural development*. Lang: Frankfurt.

Viederman, S. (2006). Can universities contribute to sustainable development? In R. Forrant & L. Silka (Eds.), *Inside and out: universities and education for sustainable development* (pp. 17–28). Amityville: Baywood.

Wang, H., & Zhou, Y. (2009). University-owned enterprises as entry point to the knowledge economy in China. *Science and Public Policy, 36*(2), 103–108.

Ward, K. (2003). *Faculty service roles and the scholarship of engagement* (ASHE-ERIC Higher Education Report, 29(5)). San Francisco: Jossey-Bass.

Wilkins, C. (1999). Making "Good Citizens": the social and political attitudes of PGCE students. *Oxford Review of Education, 25*(1/2), 217–230.

Wright, T. S. A. (2007). Developing research priorities with a cohort of higher education for sustainability experts. *International Journal of Sustainability in Higher Education, 8*(1), 34–43. http://www.esmeraldinsight.com/1467-6370. Accessed 24 Oct 2009.

Wright, T., & Pullen, P. (2007). Examining the literature: a bibliometric study of ESD journal articles in the Education Resources Information Center Database. *Journal of Education for Sustainable Development, 1*(1), 77–90. http://jsd.sagepub.com. Accessed 10 Nov 2007.