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RESEARCH REPORTS FROM TURKU UNIVERSITY OF APPLIED SCIENCES 35

Turku University of Applied Sciences
Turku 2012

ISBN 978-952-216-252-6 (printed)
ISSN 1457-7917 (printed)
Printed by Tampereen Yliopistopaino – Juvenes Print Oy, Tampere 2012

ISBN 978-952-216-253-3 (PDF)
ISSN 1796-9964 (electronic)
Distribution: http://loki.turkuamk.fi

Author: Taru Penttilä
Environmental Issues in Business Education at Finnish Universities of Applied Sciences – Towards a postmodern curriculum?
140 p., 27 app. p.
Research Reports from Turku University of Applied Sciences 35
Turku, Turku University of Applied Sciences, 2012
ISBN (printed): 978-952-216-252-6
ISSN (printed): 1457-7917
ISBN (PDF): 978-952-216-253-3
ISSN (electronic): 1796-9964

Doctoral dissertation: University of Eastern Finland, Faculty of Social Sciences and Business Studies, 2012

ABSTRACT

The emergence of environmental issues has taken place not only in business life but also in education. One of the major pressures for the educational policy, coming up from the surrounding society, concerns sustainable development and growing environmental challenges. The objective of this research is to examine whether there are environmental issues in the curricula in each business programme at the Finnish universities of applied sciences and whether the curricula have been developed according to the increasing need for environmental knowledge in businesses and organisations. The methodological approach of the study focuses primarily on the authentic documents (discourse and content analysis of degree programme curricula) and the estimations of the staff of the universities of applied sciences working closely with programme curricula (electronic survey and theme interviews).

The research findings reveal the relatively weak position of environmental issues in business education at the Finnish universities of applied sciences. Environmental issues are studied in business programmes usually to some extent but their number remains low. However, the conclusion that business education curricula at the Finnish universities of applied sciences have not responded to the increasing need for environmental knowledge and have not remarkably been renewed accordingly during the last three years is partly misleading, because the findings reveal that environmental issues have more or less been integrated or blended in curricula.

The conclusions of this research prove that curricula have to be interpreted correctly and rewritten focusing on learning outcomes they provide, and if they are described by knowledge, skills and competencies provided by the degree and its study units, environmental issues should be combined to all stages of this work in order to assure a real change and improvement in business education at the universities of applied sciences. The future curricula call for flexibility, ability to be rapidly modified and adapted to new circumstances, instead of fixed and strict structures.

Keywords: Curriculum development, business education, environmental knowledge, universities of applied sciences

Tekijä: Taru Penttilä
Environmental Issues in Business Education at Finnish Universities of Applied Sciences – Towards a postmodern curriculum? [Ympäristöaiheet liiketalouden koulutuksessa suomalaisissa ammattikorkeakouluissa – Kohti postmodernia opetussuunnitelmaa?]
140 s., 27 liites.
Turun ammattikorkeakoulun tutkimuksia 35
Turku, Turun ammattikorkeakoulu, 2012
ISBN (painettu): 978-952-216-252-6
ISSN (painettu): 1457-7917
ISBN (PDF): 978-952-216-253-3
ISSN (elektroninen): 1796-9964

Väitöskirja: Itä-Suomen yliopisto, Yhteiskuntatieteiden ja kauppatieteiden tiedekunta, 2012

ABSTRAKTI

Ympäristöaiheiden merkitys on kasvanut paitsi liiketoiminnassa myös koulutuksessa. Ympäröivä yhteiskunta odottaa koulutuspolitiikan huomioivan kestävän kehityksen sekä kasvavat ympäristöhaasteet. Tämän tutkimuksen tavoitteena on kartoittaa ympäristöaiheita liiketalouden koulutuksen opetussuunnitelmissa suomalaisissa ammattikorkeakouluissa sekä arvioida ovatko opetussuunnitelmat kehittyneet yritysten ja organisaatioiden kasvavan ympäristöosaamisen vaatimuksen myötä. Tutkimusaineisto muodostuu ensisijaisesti autenttisista dokumenteista (koulutusohjelmien opetussuunnitelmien diskurssi- ja sisällön analyysi) sekä koulutusohjelmien opetussuunnitelmatyöstä vastaavan ammattikorkeakouluhenkilöstön arvioinneista (sähköinen kysely sekä teemahaastattelut).

Tutkimustulokset paljastavat ympäristöaiheiden suhteellisen heikon aseman liiketalouden opetussuunnitelmissa suomalaisissa ammattikorkeakouluissa. Ympäristöaiheita opiskellaan liiketalouden koulutusohjelmissa jossain määrin mutta niiden määrä on vähäinen. Johtopäätös, että liiketalouden opetussuunnitelmat eivät ole vastanneet lisääntyneeseen ympäristöosaamisen tarpeeseen ja kehittyneet viimeisen kolmen vuoden aikana on kuitenkin osittain harhaanjohtava, sillä tutkimustulokset osoittavat ympäristöaiheiden enemmän tai vähemmän integroituneen tai sulautuneen opetussuunnitelmiin

Tutkimuksen johtopäätökset korostavat opetussuunnitelmien virheetöntä tulkintaa ja niiden tavoittelemien oppimistulosten selkeää kuvaamista. Kun oppimistulokset kuvataan tutkinnon ja sen opintojaksojen tuottamina tietoina, taitoina ja kompetensseina, tulee ympäristöaiheet liittää joka vaiheeseen opetussuunnitelmatyössä ammattikorkeakoulujen liiketalouden koulutuksen todelliseksi kehittämiseksi ja parantamiseksi. Uudet opetussuunnitelmat edellyttävät joustavuutta ja nopeaa muuntautumiskykyä uusiin olosuhteisiin tiukkojen ja ennalta määrättyjen rakenteiden sijasta.

Asiasanat: Opetussuunnitelman kehittäminen, liiketalouden koulutus, ympäristöosaaminen, ammattikorkeakoulut

Preface

The universities of applied sciences have aroused continuous discussion in the Finnish educational policy during their whole life-time. Scientific and academic education has traditionally been strictly divided from vocational and profession-oriented education and therefore the universities of applied sciences have met a huge challenge; how to educate experts having both professional competencies and scientific knowledge? According to the law, the education at the universities of applied sciences should meet the working life's needs and expectations and develop the current working life. The competencies and qualifications provided by this education must be relevant from the viewpoint of the working life. However, the needs and expectations of working life are dynamic and under a constant change. There is a continuous pressure of change, caused for example by globalization as well as increasing international competition, climate change and technological development. The educational policy aims to follow these challenges, but it is regularly criticized about its slowness and wrong decisions; some years there are too many engineers or too few social workers graduating, or the competencies of the graduating students are not meeting the employers' needs well enough.

Each university of applied sciences has three major interest groups; students, or customers, "buying" education; recruiting employers, or customers "buying" the end-product of the university; and financiers of the education, Ministry of Education and Culture as well as municipalities. Because these groups often have conflicting interests, the Ministry has a crucial role as the financier of the education as the regulator of the market. The optimization of the educational solutions regarding the demand for the education, the needs of the labor market, the future development of the population and the regional policy require versatile examination of the current systems and partly more daring instructions than earlier. This is where the role of curricula comes up; the learning outcomes should focus especially on chosen generic competencies in order to ensure that the education can stand up to the ravages of time, without needing continuous updating and refocusing, but simultaneously the dynamic working life expectations should be met by providing required competencies and qualifications. The purpose of the curriculum is to communicate and provide the goals of the educational policy and address the requirements of general professional competencies, in addition to indicating the principles of the evaluation. The curriculum is a valuable information source and an influence

channel for the working life, and a lifeline for the development of functional working-life connections.

One of the major pressures for the educational policy, coming up from the surrounding society, concerns sustainable development and growing environmental challenges. According to the Finnish educational policy concerning sustainability issues, the principles of sustainable development should already now be visible and integrated at all educational levels and in their curricula. This is required also by the employers, i.e. businesses and organizations, expecting environmental knowledge of their future employees. However, this is not especially discussed and studied in the context of business education at the universities of applies sciences though business education should particularly answer for competence requirements by various businesses and organizations, all being relevant to the competitiveness of the society. Thus, the ability of the curricula to change according to the changing and dynamic surrounding society is both a socio-political question as well as a question of educational policy.

The first starting point for this research came up from my own work; from the findings, together with the students as well as with the co-operating businesses and organizations, that environmental knowledge is expected of business graduates, but it is often inadequate or missing. About the deeper *idea and purpose* of my study I wish to express my special thanks to Professor Juhani Laurinkari and Professor Juha Hakala; for Professor Laurinkari not only for all the guidance along the research process but especially for opening my eyes to see the research problems from wider perspectives of the social and educational policy. Professor Laurinkari encouraged me with my post-graduate studies already when acting as the Rector of Polytechnic of Southwest Finland in years 1998-2000, being on the leave of absence from his professorship in Kuopio University. Even then he emphasized the role of educational policy as a part of social sciences and endorsed the research and education related to this field. Special thanks belong also to Professor Juha Hakala, for waking me up to observe the significance and wider context of the relevant tool, the curriculum, in educational policy; how a curriculum could and should be designed and developed in order to observe societal development pressures emerging from the society, to react to them, and to act in a value creating way in national and global value chains. In addition to this, I give my warmest thanks to Juha for the continuous motivation and in-depth feedback and instruction throughout the study process; honestly I would have given up many times without his encouragement and catching enthusiasm. Special thanks belong also to the pre-examiners of my research, Docent Pentti Rauhala and Docent Osmo Lampinen. Their feedback was extremely valuable in the fine-tuning process of my doctoral thesis.

My thanks for the *methodology and data collection* are offered to all my colleagues at the universities of applied sciences in Finland involved in business education development, and especially at Turku University of Applied Sciences, providing the data and valuable viewpoints in information gathering and in its analysis. I wish to express my thanks also to my university colleagues supporting my research work in several ways, in the data analysis techniques and in the language consultancy; and special thanks for the revision and editing of my thesis to Anttoni Lehto. *The findings and conclusions* were appreciated and encouraged by my employer Turku University of Applied Sciences and particularly by my superior, Director of Education Liisa Kairisto-Mertanen, believing in the relevance and contribution of the research and providing me with support and sparring in numerous ways. My gratitude to her for this. The *contribution* of this research was also trusted by those parties who supported my research financially, Liikesivistysrahasto and Turun Kauppaopetussäätiö. Special thanks to them; I am ensured that this research can contribute to the development of the education, and especially business education, towards the needed direction. The *research process* itself owes its success to my closest people, my family members and friends; thanks to my mother Soili and my children Elias, Riia and Roope, for patience and forbearance; to my departed father Olavi who always had unfaltering confidence in my abilities; and to my closest friends, for their encouragement and strong belief that the research, in contrast to my own disbelief, will be completed.

The research is structured in order to first provide the purpose of study. After that, the methodology is discussed, before moving to the theoretical framework, which first focuses on the conceptual study of environmental issues and environmental knowledge, discussing these also from a strategic perspective in order to contribute better environmental knowledge. After this, the focus is outlined especially on environmental issues in business education and the theoretical emphasis is fastened to the curriculum and its development. The findings are presented and the conclusions drawn, and the discussion is settled down to answer the research questions, the role of environmental issues in business education curricula as well as the ability of the curriculum to react and renew according to the needs of surrounding society and the educational policy set by it. The central message of the research results is that the global economy is forcing the education to react, and to react faster and stronger than earlier. The trend is towards the blending or integration of new and dynamic issues in the curricula, which sets new challenges of adaptability and flexibility in curriculum development. My hope is that the research information and insights shared within can accelerate the shift in this respect and contribute to a wider understanding about the curriculum as a tool for educational policy.

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1 Introduction

> "The design and execution of education reforms . . . provide an opportunity for radical breakthroughs in understanding, for giant leaps in learning" (McGinn 1999)

The education system has historically aimed to prepare people for the requirements of an industrial society, for jobs having strictly defined tasks. For a while now we have been moving towards an information society, or an experimental society, which emphasizes abilities to work in a way to achieve new or improved solutions. Companies are changing the way in which work is performed, from mechanical thinking and strict instructions to divergent thinking and creativity. This is why future education will focus on competencies in addition to knowledge. Knowledge requirements in turn are also facing challenges due to the increasing information flow and the changing and dynamic global environment, including numerous pressures such as ecological, economic, technological and social issues. The curriculum is becoming a more crucial tool in the implementation of educational policy and it should be able to react to these changes and challenges in order to answer for the expectations of the surrounding society.

1.1 BACKGROUND OF THE STUDY

The emergence of environmental issues has taken place not only in business life but also in education. The pedagogical research of environmental education, concerning e.g. the concepts of learning and the curriculum, has increased in Finland, but the concept of environmental issues in the context of higher business education has not aroused any special interest. Environmental issues are undoubtedly studied and taught also at the Finnish universities of applied sciences in their degree programmes but the position of environmental issues especially in business education curricula has not been discussed much. Some research has been conducted from an educational viewpoint (e.g. Rohweder 2001, 2002, 2003, 2004, 2007), but the extent, the background and the nature of environmental studies in business education at the Finnish universities of applied sciences are not specifically discussed. Are there environmental issues in the curricula in each business programme at the Finnish universities of applied sciences and have the curricula been developed according to the increasing need for environmental knowledge in businesses and organisations?

Traditional universities are balancing primarily between the expectations of their interest groups, university autonomy, and ministry requirements, which is known as the triangle presented by Burton Clark in 'The higher education system' (Clark 1983). Because of the different role of administrator, the universities of applied sciences in Finland operate in more complicated position than traditional universities, balancing between the expectations of municipal authorities, ministry and the working life. According to the Finnish educational policy, the education particularly at universities of applied sciences should meet the working life's needs and also develop the existing working life (Ammattikorkeakoululaki 351/2003, 4 §). Therefore it is necessary to know whether environmental issues are included in curricula of universities of applied sciences in business education and whether curricula are developed together with the changing working life and the dynamic business environment.

The curriculum is a central document in education. Curricular study is based on the idea that teaching and learning should be planned thoroughly and systematically in order for them to become a sufficiently aware and objective oriented process. Decentralisation of the curriculum, referring to the implementation of the wishes of local educational policy makers, and individualisation, referring to 'schooling for all', are prominent for curricula in northern Europe. As well, the aim to humanism and democracy in education and respect for law and one's fellow human beings are formal goals. (Kari 2001). The current challenges for education are how to prepare the learners to meet the demands of a rapidly changing working life and society – i.e. the continuous presence and pressure of that change, globalisation, information flow and technological development, and economic and ecological challenges. Thus, the education meets the pressure, coming from 'the outside', from the industrialising and industrialised, globalising world, to develop and change the curriculum in order to better answer to these changing needs and expectations. This is where the starting point for this research came up, how have universities of applied sciences been able to react to this change in their curricula in the context of environmental knowledge in business education. The study focus lies on the change; to which extent the curricula in business education in universities of applied sciences have been renewed, have they followed the growth of general environmental awareness?

All education, also higher education, is regularly criticised about its slowness to react to the society's changes (e.g. Paakkola and Suortti 1974; Suortti 1981; Kari 2001; Wasser 2001; Lampinen 2002; Kainulainen 2004; Kankaala et al 2004; Karjalainen 2007). However, it is impossible for any education to follow social changes, or economic fluctuations, in real time. This leads to the question about educational purposes of the educational policy;

which kind of skills and knowledge the education should be able to provide? Specific skills and knowledge, which will go more or less out of date, or general knowledge and skills, which are complicated to be evaluated in order to define their real application value in working life environments.

Business education must react to changes in business life (Ammatti-korkeakoululaki 351/2003, 4 §), where the significance of environmental issues can be observed easily. Customers both in consumer and business markets are increasingly environmentally aware and require more reliable and co-ordinated information about the environmental impacts of raw materials, processes, distribution, packaging and the products themselves. Understanding and utilising of this aspect will become a more crucial professional skill for sales and marketing experts. Companies face problems when they attempt to utilise environmental communications, such as lack of credibility, consumer cynicism, and consumer confusion over claims (Mendleson and Polonsky 1995, 4-18). If companies are unable both to answer the questions of more environmentally aware customers, and to utilise the company environmental policy in practical business operations, such as marketing, accounting, company communications, an essential area of business potential will be ignored (Oksanen 2002, 12).

Concerns of environmental questions are currently placed on record and their publicity in media seems to be growing all the time, which sets pressures on the environmental marketing efforts of companies. Environmental marketing is strictly connected with a company's environmental strategy and management systems. It requires management to appreciate the first law of ecology in relation to business that is "everything is connected to everything else" and to adopt a holistic view considering the process of managing a company by thinking of it as a total system. Environmental marketing is the whole business seen from the point of view of its end result that is the customer's point of view, and concern and responsibility for marketing must therefore permeate all areas of the enterprise. Polonsky and Rosenberger (2001) suggest that environmental marketing has evolved into a complex, integrated, strategic, and tactical process. It expands on the basic transaction concept by minimising the negative impact of a transaction on the natural environment. Environmental marketing is a complex tool that must be integrated across all organisational areas and activities if it is successfully implemented and aiming to achieve long-term benefits (Polonsky and Rosenberger, 2001, 21-30).

This integration does not seem to be a simple task for companies because at every turn we can read and hear in the media about neglects and failures concerning companies' environmental and wider ethical performance. Just recently, the shareholder meeting of Finnish mobile phone giant Nokia

received a suggestion, discussed in the media widely, that the company should pay more attention on environmental questions and social problems, and for example to send shareholders to get acquainted with raw material providing mines located in Congo (Kokko 2011b). Stora Enso received similar publicity, encouraged to send shareholders to familiarize with environmental issues in Brazil concerning the company operations there (Kokko 2011a) Earlier, Nokia had to promise to place greater scrutiny on the origin of its raw materials, after accusations that their phones help fund the war in Congo. According to online financial publication Taloussanomat, experts in Finland and the US suspect Nokia of using tin from mines which support Congolese rebel groups in the African country's ongoing civil war (Icenews 2011). In the autumn of 2010, Hungary declared a state of emergency after a flood of toxic sludge escaped from a factory killing at least three people, wounding 120 and threatening the country with an ecological catastrophe. It is apparent with numerous of similar examples that businesses and marketing are facing a series of fundamental changes. The sorts of competencies that business people and marketers will need in the future will differ from those which are needed today, with a far greater emphasis being placed upon the subjects such environmental and social responsibility. Among these, there is a need on the part of industry to change the way it views the environment and there is also a need to look in detail at the tools available to achieve this. From a marketing perspective there is a need to recognise the potential gains which can be achieved by being proactive and develop an approach which integrates environmental considerations into all company activities. Industries and all organisations need to take a systematic approach to environmental issues and environmental marketing has an important role to play in implementing their environmental strategies and policies.

Environmental aspects cannot be ignored in international business either. Business professionals need information about circumstances in different countries, environmental requirements for products, changing trends in consumer behaviour, as well as the ability to foresee regional development. In some European countries, the environmental issues are already now emphasised more than in Finland and used more as competitive edges (Beyond Grey Pinstripes 2001; 2010; Cowe 2002, 50-54; Moen and Jörgenssen, 2010). Bauman (2008) writes about a truly planetary responsibility: acknowledgment of the fact that all of us who share the planet depend on one another for our present and our future, that nothing we do or fail to do is indifferent to the fate of anybody else, and that no longer can any of us seek and find private shelter from storms that originate in any part of the globe. However, responsibility means now, first and last, responsibility to oneself, while 'responsible choices' are, first and last, such moves as serve well the interests and satisfy the desires of the actor and stave off the need to

compromise. (Bauman 2008, 29; 53) Thus, there are a lot of differences in attitudes and methods, and such development is presenting challenges and exerts pressures not only on company performance in the global marketplace but on decision-makers of the educational policy, and also on business education providers.

Earlier, environmental questions were thought to concern primarily large companies. The situation has changed and the significance of environmental knowledge is increasing especially in small and medium-sized companies (SMEs). This development is due to tightening environmental requirements and the fact that general interest in environmental questions is focused more on smaller companies and minor environmental impacts. Environmental knowledge is no longer regarded as a guarantee of success but as a prerequisite for survival in competition. However, there is a lot of evidence that responsible business including good environmental performance is also good business contributing to the bottom line (e.g. Neilimo 2004; Luo and Bhattacharya 2006; Perrini et al 2006). Environmental knowledge is becoming a more significant competitive tool also in Finnish companies. However, the fact had not earlier been studied in the context of business graduates, i.e. what Finnish companies' expectations are, concerning to the environmental knowledge of business graduates. The research results indicating company needs and expectations in Finland concerning environmental knowledge of particularly business graduates were general and vague. More precise information was required for the development of business education in order to meet the expectations and needs of the working life, i.e. companies and organisations, as well as the objectives for the employment of business graduates. Therefore, an empirical study in Turku University of Applied Sciences (TUAS) was justified in order to examine the topic more locally and establish whether especially those companies and business fields in Finland, which usually employ business graduates, have needs and expectations concerning their qualifications related to environmental knowledge. The hypothesis was that the Finnish working life has needs and expectations regarding the environmental knowledge of business graduates. It was assumed that company requirements in Finland are close to Scandinavian and maybe West European findings, and therefore the results could have also wider significance. The survey results are presented here briefly, because they gave the first motive to this dissertation. The survey design and process are presented in Appendix 1 (Appendix 1). The survey findings were also published (Penttilä 2006).

According to this survey, the business life in Finland cannot avoid environmental questions in their company operations. The majority of the companies involved considered that environmental issues are connected with

their company functions, and they also faced environmental questions in contact with their interest groups. Industrial companies were relatively better represented in the study than service companies. Environmental issues were more connected with several company functions in industrial companies, which also explained their higher interest in the topic. Naturally, environmental issues were also connected especially with production operations in industrial companies. These companies also stated environmental issues to come up more in the relationships with their interest groups compared with service companies. In all, industrial companies seemed to pay more attention to environmental issues than companies operating in the service sector.

The primary purpose of the survey was to examine if the working life, i.e. companies and organisations, had needs and expectations concerning the environmental knowledge of business graduates, and what kind of needs and expectations there might be. The study findings promoted the study hypothesis that there are these needs and expectations in companies, and the majority of studied companies regardless of their business field expect business graduates to have at least basic knowledge about environmental issues. Environmental knowledge is needed especially if a business graduate's work tasks are related to communication and marketing, accounting or safety questions.

The company location did not appear to have any considerable significance on the responses on the basis of the available sample. Naturally comparisons between the company size, location and business field with a wider sample could reveal distinct differences. However, the information acquired in this study endorsed the study hypothesis that there were needs and expectations in the companies requiring environmental knowledge of business graduates. Matten and Moon (2004) studied the drivers of future success of CSR teaching in business schools in Europe, and the single most important factor identified focused on the main stakeholder of business schools in the shape of 'business approval and support'. The future development of business education involves recognising company requirements and creating business programs dealing with broad environmental and social responsibility issues. Nevertheless, has business education in the Finnish universities of applied sciences reacted on this need?

Students graduating from business programmes are predominantly expected to have understanding and knowledge in environmental issues. In their future positions in companies and other organisations, especially as executives and managers as well as business and marketing experts, they must have the competence to integrate environmental solutions with strategic and

operational plans and decisions of the organisation. (E.g. Cowe 2002, 50-54; Beyond Grey Pinstripes 2010) In addition to other prerequisites set for business education, the curricula should aim to provide students with a broad understanding about current environmental issues as they relate to managerial decisions in all aspects of organisational activities. Better understanding about the business environment interface will enable more effective corporate environmental practice and decision-making. The curriculum needs to be designed to enable students to understand the processes by which environmental issues can be integrated into a broader corporate strategy, and to understand the multifaceted impact of environmental issues of overall organisational activities; and obtain better understanding about the relationship between the natural environmental and specific organisational activities such as corporate communication, marketing, production, strategic planning and financing. The growing attention to environmental issues in society has led education planners to a re-examination of the curricula for study programmes in order to make them more relevant to the major issues of the day. How to change business education to reflect to these emerging concerns is a major question.

1.2 PURPOSE, RESEARCH QUESTIONS, AND RESEARCH STRUCTURE

The purpose of this research is to find out to which extent business education curricula in the Finnish universities of applied sciences are able to be renewed and follow the increasing need of environmental knowledge. The research aims to construct an empirically grounded interpretation of the role of environmental issues in university of applied sciences-level business education in Finland. The theoretical and conceptual part of the research focuses on the essential concepts and definitions of the research topic, such as environmental issues and knowledge, business education and curricula, the competence of business graduates, and expectations of environmental knowledge in business life. The chosen approach combines educational aspects with business economics, and its managerial outcome aims to contribute to the improvement of business education in a way that generates also business benefits.

The research focuses on the universities of applied sciences in Finland for several reasons. The knowledge and skills as well as the professional image of the degree in business (Bachelor of Business Administration BBA, tradenomi in Finnish) at the universities of applied sciences is still less known especially among employers than the master's degree in business in the universities and schools of economics and business administration. The degree title is well

known (Tradenomiliitto 2001) but the level of knowledge provided by the degree is less noted naturally due to novelty of the degree. The research outline is justified also with the purpose of the universities of applied sciences; they are more oriented towards the working life than academic institutions, and therefore the curricula and knowledge provided by them should especially be based on current and future needs of employing companies and organisations.

The research is descriptive by nature, and the research problems are structured and include more than one variable (e.g. Ghauri - Grønhaug 2002; Rudestam - Newton 2001). The research problems aim to pay attention to the context of the research phenomenon and extend knowledge in the field of study. The first research question, which guides this study, is:

1. What is the role of environmental issues in business education at the Finnish universities of applied sciences?

The research question is divided into several sub questions in order to be able to examine the topics more closely. The sub questions to the primary research question are:

1.1. What are environmental issues?
1.2. Are there environmental issues in curricula in business education at the Finnish universities of applied sciences; if yes, what are they?
1.3. What is the extent of these studies in the degree?
1.4. What is their position in curricula, i.e. are the issues included in other subjects or are they studied as separate topics, and second, are they compulsory or voluntary studies?
1.5. What are the drivers for teaching environmental issues in business education?

The first research question focuses on the empirical interpretation of extensive data material. In order to be able to investigate the topic, the first sub question is needed to define the content and scope of environmental issues. The second sub question examines if and what environmental issues there are in business curricula, and the assumption is that there are some environmental issues included. The extent of these studies is measured in order to be able to evaluate their significance, and therefore the third sub question is formulated. The assumption is that there are not a significant number of credits pointed to the issues. The fourth sub question to the first research question includes actually two aspects and their objective is to further examine the significance of environmental issues in business curricula in universities of applied sciences. The last sub question focuses on the description of the driving forces of environmental issues in business education.

The research aims especially to discuss whether the curricula offerings react on and correspond with the needs and expectations of environmental

knowledge in Finnish companies and organisations, and therefore the secondary research question was formulated:

2. *Have business education curricula at the Finnish universities of applied sciences responded to the increasing need for environmental knowledge and been renewed accordingly during the last three years?*

The first research question aims to support the second research question by focusing on its contextuality and readiness for change, and contributing both managerial outcome and development ideas for business education. The second research question combines the first question to wider context by linking the environmental knowledge provided by business education with the increasing needs of environmental knowledge in companies and organisations in order to examine the readiness and ability of business curricula to react on this change. Thus, the second research question aims to contextualize the research phenomenon and contribute managerial outcomes and development ideas for business education in the universities of applied sciences. The research questions and their sub questions are interconnected.

As the research result, the study aims to draw conclusions from the current situation of environmental studies in business education in the Finnish universities of applied sciences and evaluate if the business curricula have reacted on and renewed accordingly with the increasing needs of environmental knowledge in business life. The contribution of this research is not only to discuss the current situation of environmental issues in business education but also to provide ideas how business education at the Finnish universities of applied sciences could be developed and kept updated with the changing business environment. As further result, the study aims to add mutual understanding between education providers and companies and thus to further develop the working life.

The research can be described as a five- step process illustrated in the Figure 1. The first chapter introduces the background and motives for this research. The research purpose and objectives are presented by way of research questions. The research methods and research design are discussed.

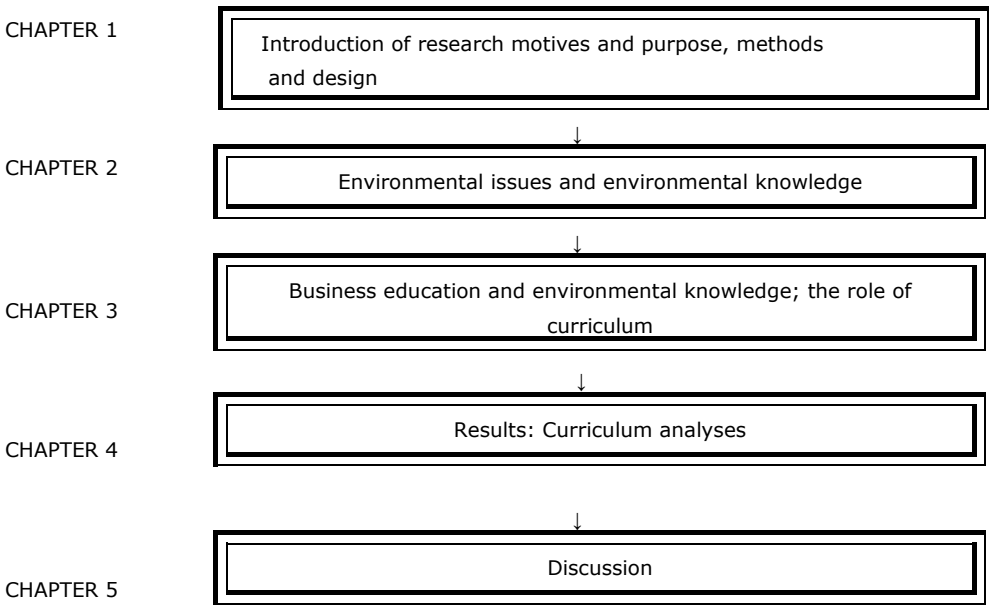

Figure 1: Research structure

The second and the third chapter form the conceptual framework for the research. The second chapter defines the key concepts of environmental issues and environmental knowledge and presents how environmental issues can be approached on a strategic level in order to contribute better environmental knowledge. The third chapter briefly discusses the educational system at the Finnish universities of applied sciences, focusing on business education at the universities of applied sciences. Special emphasis lies on discussion on competencies and qualifications provided by business education at the universities of applied sciences, both generally and concerning environmental knowledge, and on the role of curriculum in business education.

The fourth chapter examines the findings and conclusions of the curriculum analyses. There is prior knowledge of growth of environmental awareness and on that there are needs and expectations in Finnish organisations concerning environmental knowledge of business graduates, and curriculum analyses aim to study whether business curricula have reacted on this need. Chapter 4 focuses on the analysis of the results of these empirical studies concerning the business curricula and their change during the research period. Discussion, recommendations and suggestions for further research are presented in the fifth chapter.

1.3 RESEARCH DESIGN

The assumption in this research is that business education both at the Finnish universities of applied sciences and at traditional universities focuses mainly on traditional business subjects, such as accounting, marketing, economics, and business administration. It is also assumed that the emergence of environmental issues is generally known in these institutions but their actual existence in curricula is varying. It is probable that environmental issues have increased and are going to increase their significance in business curricula in the future, but readiness and ability to change and renew business curricula accordingly have not been profoundly investigated.

The target for this research is described in the table 1 and it focuses on the study field of social sciences, business and administration at the Finnish universities of applied sciences providing BBA degrees.

Table 1: Research target and material

Research target	**Organization**	**Research material**
Study field of social sciences, business and administration, BBA degrees/ All universities of applied sciences	All degree programmes providing BBA degrees	Degree programme curricula Universities of applied sciences' own estimations Interviews

The study focuses on the contents and changes of curricula in degree programmes in social sciences, business and administration. The aim is to find out the existence and significance of environmental issues in business education curricula at the Finnish universities of applied sciences during the study period and the conceivable changes concerning these. The exact focus lies on the generic labels of studies on environmental issues as well as the position, extent and drivers of these studies. The background to the problem setting includes the concepts of education at the universities of applied sciences, and competencies and qualifications in BBA degrees. Also the concepts of environmental issues and environmental knowledge as well as and the role of curriculum form the essential part of the theoretical framework of this research. The key concepts of the study are defined in appendix 2. The precise study target is set on the study field of social sciences, business and administration providing BBA degrees at the Finnish universities of applied sciences. Hence, the research perspective is national.

The main research purpose in this study is to *find out to which extent business education curricula in the Finnish universities of applied sciences are able to be renewed and follow the increasing need for environmental knowledge*. In order to be able to answer for this question, the empirical study focuses on following: *What is the role of environmental issues in business education at the Finnish universities of applied sciences and has this role changed during last three years/ have business education curricula responded to the increasing need for environmental knowledge and been renewed accordingly?*

1.4 METHODOLOGICAL CHOICES

The methodological approach of the study focuses primarily on the authentic documents (degree programme curricula) and the estimations of the staff of the universities of applied sciences working closely with programme curricula.

The choice of the data collection method is significant because it affects the quality and cost of the data collected. Another crucial aspect of data collection is whether multiple methods are used. This is particularly important because each data collection method is limited on what it can measure effectively. Using multiple methods provides more complete data on the phenomenon of interest and a broader understanding. The quality of data is also enhanced because triangulation is possible. However, if using administrative records as the source of data, the units for data collection might be applications or development projects rather than individuals. (Pinsonneault and Kraemer 1993, p.14) The research approach in this study is both quantitative and qualitative. Multiple methods are used; the empirical material consists of a high number of survey material and on the other hand of content analysis and discourse analysis of document material which is not primarily numeric. Additionally, a case study is conducted in order to gather a more in-depth example of the current situation. The methodological tools used are a survey, a content analysis, a discourse analysis, and a case study. These methods are discussed here but the analysis of the material is described more closely at the beginning of the chapters describing the empirical research processes.

These methods together form an appropriate tool for curriculum analysis; how the curricula and their development can be studied and evaluated in an extensive way. The curriculum analysis tool consisting of several methodological elements is used not only to analyse the curriculum contents but the curriculum change in addition; this was done by conducting the curriculum analysis first in the year 2006 (survey) and in the year 2007 (content and discourse analyses; case study) and then replicating these all in the year

2010. This enabled the research to focus on the main research question; to find out to which extent business education curricula in the Finnish universities of applied sciences are able to be renewed and follow the growth of general environmental awareness. The methodological choices are described in the table 2 and discussed after in more detail each in turn.

Table 2: Methodological choices

Problem	**Research method**	**Target group**	**Data collection method**
1. Are there environmental issues in curriculum?	Survey	Representatives responsible for curriculum in each university of applied sciences	Electronic questionnaire in web format
	Content analysis Discourse analysis	Degree programmes in social sciences, business and administration	Degree programme curricula
	Case study	TUAS DPs in social sciences, business and administration	Theme interviews
2. What are generic labels of study units and modules with environmental contents?	Survey	Representatives responsible for curriculum in each university of applied sciences	Electronic questionnaire in web format
	Content analysis Discourse analysis	Degree programmes in social sciences, business and administration	Degree programme curricula
	Case study	TUAS DPs in social sciences, business and administration	Theme interviews
3. What is the position of environmental issues in curriculum?	Survey	Representatives responsible for curriculum in each university of applied sciences	Electronic questionnaire in web format
	Content analysis Discourse analysis	Degree programmes in social sciences, business and administration	Degree programme curricula
	Case study	TUAS DPs in social sciences, business and administration	Theme interviews

4. What is the extent of environmental issues in curriculum?	Survey Case study	Representatives responsible for curriculum in each university of applied sciences TUAS DPs in social sciences, business and administration	Electronic questionnaire in web format Theme interviews
5. Which are the drivers for environmental issues in curriculum?	Survey Case study	Representatives responsible for curriculum in each university of applied sciences TUAS DPs in social sciences, business and administration	Electronic questionnaire in web format Theme interviews
6. Are there changes in the role of environmental issues in curricula between two research periods?	Survey Content analysis Discourse analysis Case study	Representatives responsible for curriculum in each university of applied sciences Degree programmes in social sciences, business and administration TUAS DPs in social sciences, business and administration	Electronic questionnaire in web format Degree programme curricula Theme interviews

Case study

A case study method is used in this study as an additional research method and chosen because of its relevance in this research situation. In general, as well in this study, a case study is a preferred strategy when ”how” and ”why” questions are being posed, when the researcher has only little control over events and when the focus is on a contemporary phenomenon within some real-life context (Yin 2003, 4; Yin 1989, 13). A significant opportunity with case study research is also the opportunity for a holistic view of a process. The detailed observations entailed in the case study method enable a researcher to study many different aspects, examine them in relation to each other, and view the process within its total environment. These features of the case study are also very appropriate in the context of other methods used in this study. Case study research provides a researcher with a great opportunity to obtain a holistic view of a specific research project. (Cohen et al 2000, 185)

A primary question in designing case studies is the choice between single and multiple-case designs, which means making use of one or several cases. In this study, the single case design was chosen because of its appropriateness for

research purposes. The single case study is an appropriate design when it can be used to determine whether propositions of a theory are correct, or whether some alternative set of explanations might be more relevant. The case can as well be an extreme or unique case possessing valuable information. Also being revelatory in nature justifies the use of a single case method (Mikkelsen 2005; Yin 2003). According to Gummesson (2000) there are two kinds of case studies, the first one attempting to derive general conclusions from a limited number of cases, and the second one seeking to arrive at specific conclusions regarding a single case because this certain case is of particular interest. Both types, however, may provide results of general interest. (Gummesson 2000, 74)

The concept of the case study implies the detailed examination of a single example of a class of phenomena. Naturally a case study, or a small group of case studies, cannot provide statistically reliable information about the broader class. A case study can develop extensive information about a single entity and suggest hypotheses, but it cannot conduct a formal test on hypotheses, except as counter examples. (Baxter et al 2006). However, through the use of multiple informants and supplementing information sources such as written material or participant observation a researcher can aim at increasing the reliability of the information needed to understand an empirical case (Gummesson 2000, 161). A general aim for a researcher is to generalise knowledge, but generalisation from case studies has to be approached differently. Social phenomena are part of a specific situation and therefore too liable to change to allow meaningful generalisation. Theory becomes a local theory, where knowledge in a social context arises when one is able to deal with a specific situation. (Gummesson 2000) It can be argued that when proper weight is given to local conditions, any generalisation is a working hypothesis, not a conclusion (Patton 2002). A holistic approach according is to seek both generalisation and attention to the individual case. Then it can be argued that the knowledge can be used to provide guidance rather than act as a commitment to a particular standpoint (Patton and Appelbaum, 2003, 60-71; Gummesson 2000, 85).

Like other qualitative methods, cases often rely heavily on verbal reports, such as personal interviews, and unobtrusive observation as primary data sources (Dul and Hak, 2008; Gilham 2005). For a case study, empirical data is often obtained from interviews, which can be structured, semi-structured, unstructured or group interviews. Semi-structured interview often starts with a basic checklist of areas to be covered in the interview in the form of questions. The interviewer guides the interview, but permits the various aspects of the subject to arise naturally and in any order. (Bertrand & Hughes, 2005, 79) A semi structured interviews semi structured in that sense that it concentrates on specific issues, or themes, which are known in advance, but the exact form and order of questions, which is typical of a structured interview, are missing. The

questions are mostly open-ended and a conversational manner is assumed in order to let the respondents make their comments freely. The themes are more specific than research problems, but they are not strictly formulated questions either, rather they are a checklist of catchwords, or an interview guide. The purpose of this interview guide is to make sure that the interviewer will cover all the issues relevant to the research, but it still leaves room for changing the order of issues and letting the discussion cover a wide range of topics which may come up and be of interest to the research. Both qualitative and quantitative methods can be used for the analysis of data from semi structured interviews. The analysis does not have to be very intensive and it may be enough to make the summaries of different themes and to present the results. Usually, the aim of the analysis is to be more precise than this, but still conclusions can be drawn without very formal rules or statistical methods. (Bertrand & Hughes 2005; Day 2005; Kumar 2005; May 2001). The data collection process was carried out by taking notes. Note-taking was preferred because the disadvantages of recording an interview, centring on the anxiety and nervousness provoked in the respondent. The accuracy of responses can be jeopardised since respondents do not want to be recorded saying "the wrong thing".

The research objects of the case studies are Turku University of Applied Sciences and its degree programmes leading BBA degree. This included three degree programmes in social sciences, business and administration, having 10 different specialisations and curricula in 2007, and four degree programmes with 13 specialisations in the year 2010. The case study design and study process are described in detail in Chapter 4.3.

Survey

The survey method can be described as follows: A scientific social research method that involves selecting a random sample of people to answer some questions, designing a standardized questionnaire to get information about the research question(s), administering the questionnaire, coding the responses in a standardized form, analysing the results to provide descriptions about the people in the sample and find relationships between different responses, and generalizing the results to the population from which the sample was drawn. A survey is used to collect information that is not available from other sources, and using a standardized measurement (questionnaire) provides comparable information from everyone taking the survey, which allows for meaningful analysis. In addition, with a good sample, the results can be generalized to the population in which the researcher is interested. (Aldridge and Levine 2001; Baxter et al 2006; Babbie 2009)

The survey is an effective tool for getting opinions, attitudes and descriptions as well as for getting cause-and-effect relationships (Ghauri and Grønhaug 2002, 93). In order to investigate the role of environmental issues in business curricula in this research, a descriptive survey is used, being concerned with identifying the phenomena whose variance we wish to describe. Here the focus is on a representative sample of relevant population as we are concerned principally with accuracy of the findings and whether they can be generalized (Ghauri and Grønhaug 2002, 95). The type of survey used here can be described also a longitudinal one as distinct from cross-sectional surveys, cross-sectional surveys referring to the method used to gather information on a population at a single point in time (Babbie 2009). In this study, an electronic survey method was used. Electronic surveys are usually cheaper to conduct and provide faster responses than traditional paper and pencil methods ; they eliminate tedious mail processes, are less likely to be ignored as junk mail, encourage respondents to reply, and can be construed as environmentally friendly. However, they also generate problems involving sampling, response consistency and participant motivation. (Yun and Trumbo 2000; Couper and Miller 2008; Heerwegh and Loosveldt 2008)

In surveys, the most critical element of the sampling procedures is the choice of the sample frame which constitutes a representative subset of the population from which the sample is drawn. The sample frame must adequately represent the unit of analysis. Regardless of the unit of analysis, the units for data collection in survey research are usually individuals. Thus, it is not only important to determine exactly what the unit of analysis is but also who will be the respondents representing the unit of analysis of interest. Once this is determined, most sampling issues are straightforward. For special populations that regularly use the Internet, the Web has been found to be a useful means of conducting research (Couper et al. 2001; Sills and Song 2002). In most of the research examining e-mail surveys the concerns are voiced especially about sample representativeness (e.g., Dillman, 2000; Cook et al. 2000; Couper 2000; Sills and Song 2002). This is a legitimate concern, especially considering that many survey populations are geographically and demographically diverse. However, in this study the sample representativeness was not problematic and therefore an electronic survey was an appropriate method; the target group is clearly defined and limited consisting of all degree programme representatives responsible for the degree curriculum. The information is collected from each unit of analysis (each degree programme) and sampling is therefore not needed. All members in the population are also reachable by e-mail.

In addition to sample representativeness, survey response rates are a major concern for the validity of survey results. In e-mail surveys, there is no

consensus in research results concerning the response rate. Several researchers report response rates for e-mail surveys to be clearly or somewhat lower than mail surveys (Börkan 2010); Schonlau et al 2002) but there is also research evidence of e-mail surveys performing well and even better than mail surveys, and the response rate being close to 70% (Yun – Trumbo 2002; Porter and Whitcomb 2007). Multiple contacts with respondents appear to increase the response rate in e-mail surveys, as they do for other methods (Kaplowitz et al 2004; Couper and Miller 2008). In the survey of this study year 2007, the population was 103, including all degree programmes in social sciences, business and administration leading to the BBA degree, and the number of valid answers (= response rate) was 40.8%. In 2010, the population was 99 degree programmes, the response rate being 38.4%.

One aspect of response quality in surveys is the salience of an issue to the sampled population, and it has been found to have a strong positive correlation with the response rate (e.g. Truell - Goss 2002). When electronic survey issues are less salient, response rates tend to be slightly lower (Cook et al 2000). Rowe et al. (2006) refer to several earlier research results concerning the response quality of electronic surveys involving the social desirability effect, stating that if these results were to generalize to more complex, real-world environments, they would suggest that electronically administered surveys may actually provide an improvement over other methods, in the sense of eliciting less biased, more truthful responses (Rowe et al 2006). Here, the response rate being satisfactory, it can be assumed that the issue has been considered as salient for the respondents. The respondents have the responsibility of the curricula and the issues concerning curriculum are evidently of interest, both from the professional viewpoint and ex officio.

A cognitive pre-test is a chance to take a draft of the survey to potential respondents and ask them personally to review each question. The choice of respondents for the pre-test should be based on their similarity to future respondents. A pilot test is used in order to try out an instrument before it is made final. I.e. the use of a survey instrument is tried to simulate in its intended setting. The results of the pilot test can give guidance revising the survey instrument and planning the logistics of survey administration. (Fink 2003, 107-112) Both a pre-test and a pilot test were used in this research process. In the pre-test people who participate in curriculum development but who were not included in the respondent group because they did not have the main responsibility of the curriculum were asked to review all questions. The pilot test was arranged when the survey was already placed on the server; the questionnaire and its functionality were tested and the test results were then deleted from the database. After both test phases some corrective actions were taken in order to improve the questionnaire and its functionality.

The main way of collecting information in a survey method is by asking people structured and predefined questions. Their answers, which might refer to themselves or some other unit of analysis, constitute the data to be analysed. Although surveys can be a cost-effective type of research, survey research design suffers from inherent weaknesses. One weakness is probably due to the fact that all surveys are basically exploratory; inferences can be made, but not at the same level of cause-and effect and ruling out rival hypotheses like e.g. with experimental research. Respondents can also be used to other terminology than the researcher and the questions are misunderstood. Other survey weaknesses can include reactivity (respondents tend to give socially desirable responses that make them look good or seem to be what the researcher seems to be looking for), sampling frame (difficulty of accessing the proper number and type of people who are needed for a representative sample of the target population), non-response rate (a lot of people won't participate in surveys, or drop out), and measurement error (surveys are often full of systematic biases, and/or loaded questions). (O'Connor 2004; Kaplowitz et al 2004; Sheenan 2001) Here, the reactivity problem was met by expressing the same question again in different format in order to check the consistency of the answers. It is not either probable that respondents tended to give socially desirable answers because the questionnaire was replied anonymously. The problem of the sampling frame was avoided because the whole population was included. The non-response rate was aimed to keep low with an appealing and informative cover letter and two reminders. Systematic biases and loaded questions were reduced by a pilot test.

Content analysis

Bernard Berelson defined content analysis as "a research technique for the objective, systematic, and quantitative description of manifest content of communications" (Berelson 1952, 74). To conduct a content analysis on a text, the text is coded, or broken down, into manageable categories on a variety of levels; word, word sense, phrase, sentence, or theme; and then examined using one of content analysis' basic methods: conceptual analysis or relational analysis. Content analysis is a product of the electronic age. Though content analysis was regularly performed in the 1940s, it became a more credible and frequently used research method since the mid-1950's, as researchers started to focus on concepts rather than simply words and on semantic relationships rather than just presence (de Sola Pool, 1959). Thus, a content analysis is a research technique for making replicable and valid inferences from texts to the contexts of their use.

Kimberly A. Neuendorf (2002, p. 10) offers the following definition of content analysis: "Content analysis is a summarizing, quantitative analysis of messages that relies on the scientific method and is not limited as to the types

of variables that may be measured or the context in which the messages are created or presented." However, a content analysis can be qualitative too. The results are then used to make inferences about the messages within the text and the interpretation about the contents is not conducted according to any strictly defined norms. (Krippendorff, 2004) Content analysis is also useful for examining trends and patterns in documents and it can provide an empirical basis for monitoring e.g. shifts in public opinion (Stemler, 2001).

In this research, content analysis has been utilised only as a supporting method, used in classification in order to be able to put the descriptions of environmental issues in curriculum to meaningful content groups. These content groups are based the theoretical framework and the research questions of this study and they follow the same classification principles used it the survey. This grouping was completed during the content analysis in order to be more able to interpret the study material in the discourse analysis requiring more strict classification.

Discourse analysis

Many popular text analysis methods resemble remarkably a content analysis method, and one of them is discourse analysis. In scientific use, a discourse does not refer to all communication but to communication between a sender and a receiver and having a specific social purpose. Another element in discourse here is power; discourse is speech connected with certain social status and power relations. (Mills 2004) Discourse analysis can be defined as (a) concerned with language use beyond the boundaries of a sentence/utterance, (b) concerned with the interrelationships between language and society and (c) as concerned with the interactive or dialogic properties of everyday communication (Stubbs 1983).

Discourse analysis is concerned with language use in social contexts, and in particular with interaction or dialogue between speakers (Slembrouck 2006). Also Fairclough (2007), representing critical discourse analysis, stated that social reality affect language, i.e. the relationship between language and social reality can be considered as dialectical. Therefore a discourse shapes the existing identities and positions of people as members of society which involves that discourse can have power to generate change. This element can be found also in the research material used in this study consisting of degree programme curricula. Existence and visibility of environmental issues in course offerings aim to increase the knowledge of students of these issues but also to encourage unaware or ignorant students to study these. Critical discourse analysis does not study the superficial structures of the language but focuses more on deeper, often hidden, significance of a discourse. It has been used especially in research on media discourse, and how media discourse can

have impact on people and manipulate their thinking (Jørgensen and Phillips 2002; Fairclough 2007). The meaning of media discourse for this study comes up for example in that how degree programmes communicate about their offerings of environmental studies and motivate students to participate in these.

This analysis method can be defined also by focusing on the elements which differentiate it from content analysis. According to discourse analysis, the use of language builds up the reality; the difference between the use of language and the 'real' reality are not considered but they are intertwined. Similarities with content analysis can be found as well; in traditional content analysis the context of a specific word or expression helps to interpret what a writer or speaker means, and this is typical also for discourse analysis. However, in discourse analysis it is found more relevant to study internal relationships in the text than in content analysis. (Toivonen 1999, 131)

Calculations or formalism are exceptional in the context of discourse analysis which makes it more qualitative analysis method than a content analysis. Naturally it has also formalised e.g. by van Dijk (2000, 2007) who analysed discourse through three perspectives, structure, production and understanding, which helps to classify not only texts but also oral or illustrated messages. Van Dijk's structural analysis distinguished also the micro and macro structure of text; macro level structures referring to the theme or whole content of the text, micro level structures focusing on the words or syntaxes of the text. The extent of the material studies does not need to be wide, even a minor amount of material can result in crucial findings through deep analysis. Precise ways of reading and interpretation as well as the strict classification of the material are key elements in a good discourse analysis. (van Dijk 2000, 2007; Toivonen 1999, 132; Schiffrin et al 2003)

Discourse analysis is an appropriate tool in curriculum analysis too. The methods of discourse analysis of verbal data can be used to compare curriculum documents, and they make possible rich descriptions of the lived curriculum, its relation to official curriculum plans, and the web of intertextuality among all the spoken and written language in which education is framed. (Lemke 1998)

The discourse analysis was used in this study to analyse the content meaning of degree programme curricula. The goal was to investigate whether and how environmental issues were communicated in curricula and what kind of language is had been used. All curricula were analysed, which was possible because of their good availability, limited number and distinct structure. Curricula are results from a long process with many stages, and several

interest groups have participated in their production, directly or indirectly, which naturally has had impact on curricula contents and structure. It can be stated that curricula are results of a discourse, which has produced the final contents of curricula. There have been several views and aspects considered, some interest groups have had more authority in this discourse than the others, compromises have been made, and finally each degree programme has tried to emphasise its own strengths, innovative features and orientations. All this discourse has produced the final outcome in the written format of curricula, which form the research material in the discourse analysis material of this study.

Discourse analysis always remains a matter of interpretation. Observations are always connected with their context and a specific social basis. As there is no hard data provided through discourse analysis, the reliability and the validity of findings depend on the force and logic of arguments. Even the best-constructed arguments are subject to their own deconstructive reading and counter-interpretations. The validity of analysis is, therefore, dependent on the quality of the rhetoric. Traditional approach to research representativeness is therefore weakened. However, it is hardly possible to reach true reality in observation either because there are always pre-hypotheses involved. (e.g. Fulcher 2005; Wood and Kroger 2000; Jokinen 1999)

2 Environmental issues and environmental knowledge

Environmental science is an interdisciplinary field. Because environmental disharmonies occur as a result of the interaction between humans and the natural world, both must be included when seeking solutions to environmental problems. It is important to have a historical perspective, appreciate economic and political realities, recognize the role of different social experiences and ethical backgrounds, and integrate these with the science that describes the natural world and how we affect it. (Enger and Smith 2004)

The axioms of the research field of economics and business administration can be challenged in many ways. Starting from Adam Smith, the starting point for economics has been the profit maximization of an individual actor. Free market economy was soon observed to have its problems, people not behaving rationally and according to classical assumptions. The world view of the classical economics has been widened after this; for example, co-operation can be a natural way of action, people not acting in a selfish way in every occasion, as indicated e.g. by Eleanor Oström, having the Nobel Memorial Prize in Economic Sciences. She emphasizes the multifaceted nature of human–ecosystem interaction and argues against any singular "panacea" for individual social-ecological system problems (Ostrom 2005). The basics of economics have been discussed also from the ecological viewpoint (e.g. Kapp 1950, Passet 1979), considering the basis of the whole Western economics as distorted. In all, the research field is confronted by numerous and even conflicting views.

Single environmental issues or problems can relate to any of those diverse manifestations of mutual interaction between the society and the nature. In other words, these issues cannot form any coherent and structured entireness but they are diverse and connected with the situation. Environmental issues are in the focus of the curriculum analysis of this study, and therefore the concept and its scope are discussed here. Environmental knowledge including environmental issues is a strategic decision, i.e. a strategic decision can contribute better environmental knowledge, needed in organisations, which business education in UAS aims to develop. These concepts are their interconnections are therefore also briefly discussed

2.1 SCOPE OF ENVIRONMENTAL ISSUES

The attributes ”environmental” and ”green” are used in various contexts in various ways. There is no accurate definition for what a “green” organisation, or a “green” person, actually is, but it usually has at least some of the following features: a concern for life on Earth, future generations and/or other countries and their people; a desire to develop sustainable alternatives to environmentally destructive economic growth; a desire to protect the environment, globally and in the long term, as part of a process of improving the quality of human life; a desire to create a ”fairer” world through more equitable patterns of trade and through open participatory government at every level of society; and a desire to emphasise the values of conservation, sharing and self-reliance instead of the values of consumption and materialism. There has been evolution in the development of these attributes especially in business studies, for example this can be easily seen in the use of marketing concepts: from *ecological* marketing, a narrowly focused initiative which concentrated on reducing our dependence on particularly damaging products; to e*nvironmental* marketing, a more broadly based initiative which aimed to reduce environmental damage by tapping into green consumer demand and opportunities for competitive advantage; and finally to *sustainable* marketing, a more radical approach to markets and marketing which seeks to meet the full environmental costs of production and consumption to create a sustainable economy. (Peattie 2002 a, 2002b, 2002c)

The scope of environmental, or green, issues is also wide. Often environmental issues refer to those concerning the physical environment while green issues are considered as a wider concept covering not just the physical environment but the human environment too (e.g. issues such as poverty, population growth, the arms industry, and international debt). In literature about environmental or green issues in business context there is no clear definition either, because these issues are so closely linked, e.g. people’s quality of life is linked with their physical environment too. In this study, we focus primarily on environmental issues concerning the *physical environment*, because knowledge about green issues is still quite varied among various organisations and market areas. The definition of the physical environment focuses at least on following elements: sources of energy (renewable and non-renewable sources); ozone depletion; waste; global warming; air pollution; deforestation, desertification and soil erosion; lack of clean water; and chemicals. The list of the elements of physical environment is not exhaustive and it could be continued with issues such as the acidification of lakes and ecosystem destruction. A clear-cut definition of elements is difficult also for the reasons that the elements are so closely linked to each other that it is in many

cases not possible to define which of the elements is a cause and which is an effect.

The act on the environmental impact assessment procedure gives a feasible classification of environmental impacts (Ministry of the Environment 2004, 2 §). According to it, an environmental impact means the direct and indirect effects inside and outside the country territory of a project or operations on

a) human health, living conditions and amenity;
b) soil, water, air, climate, organisms and biological diversity;
c) the community structure, buildings, landscape, townscape and cultural heritage; and
d) the utilization of natural resources; plus
e) interaction between the factors referred to in subparagraphs a-d.

Therefore environmental issues cannot be defined alone on the basis of natural science but cultural and political aspects are often involved. It is also common to take even wider and more multi-disciplinary approach to environmental issues and include e.g. ethical, socio-cultural, economic, political and historical perspectives to the concept of environmental issues. (Ison et al. 2002; Gilpin 2000; Hail and Jokinen 2001, 42). In this context the concepts of sustainable development and corporate social responsibility are of vital importance.

Sustainable development (SD) refers usually to the definition presented in the report given by the UN World Commission on the Environment from the year 1987, where sustainable development means growth that is forceful and at the same time socially and environmentally sustainable, covering a broad range of issues including ecosystem preservation, conservation of resources, population growth, food supplies and urban development. The Commission defined sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. (Brundtland 1987, 43) When currently vital activities impose costs on the future (e.g. the use of non-renewable natural resources) full compensation must be paid (e.g. the development of new technologies switching from fossil fuels to solar power). Sustainable development refers therefore to economic development that endures over the long run. (Turner et al. 1994, 54-55) Tietenberg (2003) points out that Brundtland's statement is far from the only possible definition. According to him, sustainable development is a nascent concept still being in the process of being refined and clarified due to the vagueness of the current definition, because market imperfections frequently make sustainable development less likely. (Tietenberg 2003, 553-579). However, the possibility of combining economics and environment creating a 'win-win' situation, and the notion that 'pollution prevention pays' have generated

numerous researches and publications (e.g. Porter and Kramer 2006; Luo and Bhattacharya 2006; Kolk 2000; Hart 1997; Howes et al. 1997; Florida 1996; Shelton and Shopley 1996).

Not only the definition but also the scope and the actors involved are demanding concepts in the context of sustainable development. Because various social and political systems are so intertwined with economic activities in societies, sustainable development has to involve both corporate and political forces. It is not enough to highlight that company activities cause most environmental problems, but the active collaboration of the corporate world must be an essential element in any successful set of initiatives which are implemented to focus on the world's environmental problems. To remain sustainable, companies have to operate within socially accepted parameters which for example refer to how companies treat people and the environment. This is often called the *'social contract*'. The scope of sustainable development also needs to broaden; whilst national initiatives on environmental issues are important, coordinated international initiatives should not be neglected either, even though they are difficult to implement e.g. as Kyoto protocol has shown. (Fisher and Lovell 2006, 338-355)

According to *Corporate social responsibility (CSR)* companies are expected to pay attention not only to economic goals but to social and environmental questions as well (e.g. Ketola 2005; Kolk 2000; Könnölä and Rinne 2001; Marewijk 2003; Panapanaan et al 2003; Pihkola 2004; Talvio and Välimaa 2004, Welford 2002). The European Commission identifies CSR as 'a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis' (European Commission 2001, 2002). The concept of is closely combined with the concept of sustainable development; through CSR businesses contribute to sustainable development. CSR is about the core business activities of a company, and while companies are there to make profits, an approach which integrates environmental and social considerations and is based on dialogue with stakeholders is likely to contribute to the long-term sustainability of business in society (European Multistakeholder Forum on CSR, 2004). The World Business Council for Sustainable Development stresses that sustainable development rests on three fundamental pillars: economic growth, ecological balance, and social progress. As an engine for social progress, CSR helps companies live up to their responsibilities as global citizens and the local neighbours in a fast-changing world. It defines CSR as "business' commitment to contribute to sustainable economic development, working with employees, their families, the local community, and society at large to improve their quality of life"(World Business Council for Sustainable Development, 2000).

Corporate responsibility is a term which is supplanting the term corporate social responsibility. The word 'social' is increasingly being omitted in order to emphasise wider responsibilities of companies, especially their responsibilities with regard to the environment. The development of the requirements of companies to act in a responsible way has contributed to the emergence of the closely related concepts of *corporate governance* and *corporate citizenship.* Because companies are playing an increasingly influential role in every economy, the demand for more responsibility on the part of companies is unlikely to diminish. (Fisher and Lovell, 2006, 295-301)

The environmental responsibility of companies and organizations covers all impacts of their own operations on the natural environment. One measure of the impacts is provided by the 'ecological footprint' accounting system, where all environmental impacts caused by a company are included (Worldwatch Institute, 2004, 16). The smaller the footprint, the better it is ecologically. However, the size of the footprint does not directly correlate with a company's environmental responsibility because there are differences in number of environmental impacts between business fields (Ketola 2005, 46-47). Similarly, there are differences in that which environmental issues companies and organizations find important. The Ministry of the Environment in Finland classifies environmental issues concerning companies and organisations according following: environmental management and management systems, environmental/CSR reporting, environmental legislation and regulations, environmental impacts and risks (incl. environmental technologies), and products and purchasing, all categories covering several environmental subjects (Ministry of Environment, 2005).

In Finland, environmental issues have been discussed more profoundly since the 1980s and often in the context of the concept of business ethics. A decade later the concept of CSR replaced it. Especially CSR and environmental management have had mutual connections in the Finnish discussion, and currently they can be considered have merging into one concept – *responsible business*. (Kallio – Nurmi 2005) The crucial role of Finnish society should not be forgotten when examining responsible business activities in Finnish companies. Traditionally, the Finnish state has played a strong role in the society taking care of education, cultural issues, social security systems etc., which has made it possible to Finnish companies to focus in their core businesses. (Heikinheimo 2005) Governmental bodies such as Ministry of Trade and Industry and Ministry of Labour as well as organisations such as The Confederation of Finnish Industries (EK) have actively promoted CSR and responsible business issues in Finland. (Kallio – Nurmi 2005)

2.2 ENVIRONMENTAL KNOWLEDGE: A STRATEGIC APPROACH

Environmental knowledge means the knowledge and skills of organizations and individuals to act according to the requirements of sustainable development. It is needed to sustain and develop competitiveness, and therefore environmental knowledge is needed especially in the following key areas of competitiveness: development of the value chain, establishment of environmental reputation, and renewal of management. (Linnanen 2005; Doering et al 2002) Environmental knowledge can be measured both on organizational and product level. On the organisational level, the development of environmental knowledge of the company is analysed and compared with other companies in the same field of business. On product level, the life cycle and environmental impacts of a company's products and services are analysed and compared with other products and services offering similar benefits. (Kivimaa 2008) In order to realise competitive advantage based on environmental issues, a company must develop an environmental strategy which translates actions into benefits, improving its environmental performance and addressing the environmental demands placed by various stakeholders (Welford 2000).

In the following chapters, it is first discussed briefly about the concepts of strategy and environmental strategy. Environmental knowledge and its development are based on a strategic decision and prerequisite a holistic approach, and it is presented how environmental issues can be approached on a strategic level in order to contribute better environmental knowledge. The discussion from the organisational viewpoint is emphasised, because environmental knowledge of business graduates is needed and utilised in organisations. Additionally, business education aims to provide knowledge needed especially to develop the working life, i.e. companies and other organisations.

2.2.1 Strategy concepts

There is no single, universally accepted definition of a strategy. James Brian Quinn (Quinn et al 1988, 3) presents a strategy as the pattern or plan that integrates an organisation's major goals, policies and action sequences into a cohesive whole. Ansoff says simply that a firm needs a well-defined scope and growth direction, that objectives alone do not meet this need, and that additional decision rules are required if the firm is to have orderly and profitable growth. Such decision rules and guidelines can broadly be defined as strategy. (Quinn et al 1988, 10). Ansoff also calls a strategy for "a rule for making decisions under partial ignorance", which refers to the fact that the surrounding environment includes components that cannot be predicted and

assessed with any kind of certainty. Dealing with uncertainty in decision-making situations requires an approach that can be called a strategy. (Ansoff 1976, 106-107) A strategy is an on-going process and targeted to the future. Drucker (1980) states that one can have strategies for tomorrow that anticipate the areas in which the greatest changes are likely to occur, strategies that enable a firm to take advantage of the unforeseen and unforeseeable. Strategy aims to exploit the new and different opportunities for tomorrow. (Drucker 1980, 61)

According to Quinn (1980), strategies contain three essential dimensions: the most important goals to be achieved, the most significant policies guiding or limiting action, and the major action programs that are to accomplish the defined goals within the limits set. Several distinct levels of strategy in a commercial context have been identified by different authors. Table 3 presents some common typologies of strategy levels.

Table 3: Levels of strategy

SOURCE	LEVEL OF STRATEGY	DESCRIPTION
Hofer and Schendel 1978	Corporate	Allocation of resources
	Business	Competitive position
	Functional	Actions of specific functions/business
Johnson and Scholes 1988; Johnson et al. 2008	Corporate	Overall scope of an organization and how value will be added
	Business/ Competitive	How various businesses included in corporate strategy should compete; how units provide best value services
	Functional/Operational	How the component parts of an organization deliver effectively the corporate and business level strategies in term of resources, processes and people
Toyne and Walters 1993; Buchholz 1998	Enterprise	Development of the role of the organisation in the society
	Corporate	Product market decisions
	Business	Competitive approach
	Functional	Operational decisions

According to Hofer and Schendel (1978, 27) three levels of strategy are corporate strategy, which addresses the allocation of resources among the various businesses or divisions of the organisation; business strategy, dealing primarily with the question of competitive position, existing at the level of the individual business or division; and functional strategy, which is limited to the actions of specific functions within specific businesses. Also Johnson and Scholes (1988, 9) and Johnson et al (2008, 7) use very similar classifications. Corporate level strategy is concerned with the overall purpose and scope of an organisation and how value will be added to the different parts of the organisation. This strategy level emphasises the need for the financial and organisational structure of the company to be involved in the corporate strategy. The description of business strategy, or competitive strategy, underlines the decision on how to compete in the chosen markets. In the public sector, the equivalent of business level strategy is decisions about how units should provide the best value services. Thus, whereas corporate level strategy involves decisions about an organisation as a whole, business strategy level decisions relate to particular strategic business units within the organisation. Functional, or operational strategy, concerns separate company functions and defines how these contribute to the other strategic levels. They are concerned with how the component parts of an organisation deliver effectively the corporate and business level strategies in terms of resources, processes and people. (Johnson and Scholes, 1988, 9; Johnson et al 28, 7) According to Buchholz (1998) and Toyne and Walters (1993), the levels of strategy include four levels. The enterprise level encompasses the development of the role of the organisation in the society; the corporate level considers product market decisions about entering, withdrawing, or remaining in an industry; the business level focuses on how to compete within an industry; and the functional level is concerned with operational decisions. (Buchholz 1998, 382-383, Toyne and Walters 1993, 55-59)

The concept of tactics often occurs in context of strategies. The primary difference between strategies and tactics lies in the scale of action or the perspective of the manager. Ackoff (1974) suggests that strategy and tactics are two aspects of behaviour. Strategy is more concerned with long-term goals and ways of pursuing them that affect the system as a whole while tactics addresses shorter-term goals and ways of reaching them that generally affect just a part of the organisation. (Ackoff 1974, 29)

Referring to all definitions of strategy presented earlier, it is clear that the concept of environmental strategy can also be defined in several ways. Ottman (1998), for instance, simply says that environmental strategies are principles and objectives which make it possible to create profitable new or improved products and packages that balance customers' needs with environmental

considerations. In this study, the definition of environmental strategy corresponds with the concepts of corporate and business strategies described by Hofer and Schendel. These concepts of strategy deal primarily with the questions of competitive situation and the allocation of resources. In order to realise competitive advantage based on environmental issues, a company must develop an environmental strategy which translates actions into benefits, improving its environmental performance and addressing the environmental demands placed by various stakeholders (Welford 2000).

2.2.2 Environmental strategy and environmental knowledge

There are several factors which together serve to encourage organisations to respond to the environmental challenge. These factors can be found both in internal and external environment an organisation. An organisation has to be familiar with the requirements and expectations of the stakeholders in their environment to be able to create a holistic environmental approach covering various aspects of an organisation and its stakeholders. The main focus of an organisation's or a company's stakeholder interest has traditionally lain on the financial aspects, but increasingly stakeholder pressure is concentrating on the environmental performance of the organisation. Environmental competitiveness must be defined from stakeholders' viewpoint; and the concept refers to stakeholders' view on the level of a company's environmental protection and management. This view forms the basis for the stakeholders' decision-making. (Heiskanen 2004, 42-43) Almost all company operations have more or less impact on the environment, and if these are managed well, the company will enjoy the benefits of a strong corporate reputation, which has important and positive implications for the brand image. A good brand image enhances the value of a product, increases public confidence in that product and consequently, boosts sales and share prices. (Curtin, 2000, 4-5) Environmental knowledge of a company must be visible; in product offerings, in personnel's skills and attitudes, and in management of the environmental impacts of all company function. Given the internal and external demands to improve the environmental performance of a company, those companies that achieve good environmental performance can benefit in several ways (Figure 2). Many of these benefits are related to cost savings and/or profit generation. The topic 'does it pay to be good' has been discussed a lot and the results have been mixed. However, those companies which direct at being good corporate citizens and focus largely on environmental and CSR questions together with customer satisfaction tend to do much better financially than those that do not (Johnson 2003, 34-40) Additionally, several researcher have concluded that there is money to be made from socially responsible and environmentally responsible business, not just through engaging in PR gloss but through business innovation and creativity. (McIntosh et al 2003, 11; Porter and Kramer 2006; Luo and Bhattacharya 2006)

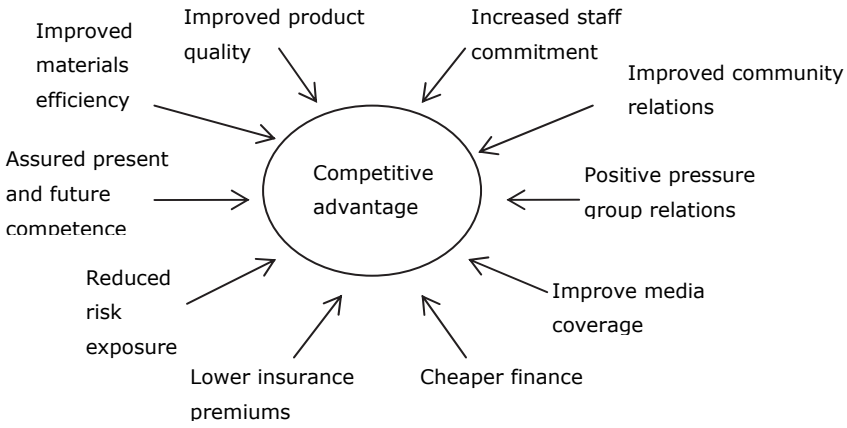

Figure 2: Benefits of good environmental performance on a company's competitive advantage (Adapted from Welford 1993, 11)

A strategic approach to environmental issues is essential in environmental knowledge. Environmental knowledge refers to mastering of environmental issues, not as separate topics only on a company's operational level but managing and integrating them comprehensively in all business including company strategies and visions. A good command of environmental issues is also forward-looking; the anticipation and development of environmental questions becoming a prerequisite for successful business in current network society. (Porter and Kramer 2006; Oksanen 2002, Pohjola 2003, Welford 2000). Traditionally, environmental strategy consists largely of piecemeal projects aimed at controlling or preventing pollution. Focusing on sustainability means taking the Earth as the context in which companies do business, and they must ask whether they are a part of the solution to environmental and social problems or a part of the problem. According to Hart (2001), pollution prevention, product stewardship and clean technology are the tools for moving a company towards sustainability. This means that first companies and other organisations must make a shift from pollution control to pollution prevention. Product stewardship concentrates on minimizing not only pollution caused by production but also all environmental impacts associated with the whole life cycle of a product. Clean technology refers to that companies begin to plan for and invest in tomorrow's technologies, because the existing technology in most industries is not environmentally sustainable. (Hart, 2001, 12-15)

What actually makes the environment a strategic issue? As a result of knowledge of environmental damage to the global systems that support life, society has begun to express overtly its need for a clean, wholesome and stable

environment. The potential business opportunities inherent in meeting this demand are vast and have to be considered alongside the more obvious constraints on operating practice that such changes will bring. It is this combination of opportunity and pressure for major change that primarily makes the environment a strategic issue. (Crosbie and Knight 1995, 4) A number of researchers have developed the typologies of environmental strategy that describe the different ways in which businesses are responding to the environment (table 4).

Table 4: Environmental strategy approaches

SOURCE	ENVIROMENTAL STRATEGY	DESCRIPTION
Roome 1992	Non-compliance	Does not recognise the significance of environmental imperatives
	Compliance	Reactive approach driven by regulatory agenda
	Compliance-plus	Taking a proactive position
Schot and Fischer 1993	Crisis-oriented	Passive response
	Cost-oriented	Environmental regulation accepted as a cost of doing business
	Enlightened	Reactive approach, with a preoccupation with the legislative agenda
	Innovative and environmentally-oriented	Seeking excellence in protecting the environment and creating new opportunities on the road to competitive advantage
Welford 1994	Ostrich	Does not recognise the environmental challenge facing business
	Laggard	No response; recognition but no interest
	Thinker	Still no response, but taking a positive attitude and watching the development
	Doer	Proactive; implementing changes, planning ahead, communicating actions
Hall and Roome 1996	Compliance	Acting in compliance with legislation
	Eco-efficiency	Operational emphasis; reducing costs, creating a more efficient business
	Environmental	Ecological approach, integrating ecological values to build competitiveness

Niskala and Mätäsaho 1996	Compliance	Strategy based on environmental requirements set by the law
	Preventive	Preventing environmental responsibilities and risks
	Ecological	Improving competitiveness by efficient use of resources, utilisation of market opportunities
	Sustainable	Considering also future generations' rights and social justice
Gummesson 1998	Legislation-based	Defensive strategy; avoiding costs; threat
	PR-based	Opportunistic, improving the image, cosmetic addition or fad
	Value-based	Aggressive; source of income, customers' demand, opportunity to gain sustainable competitive edge
Preuss 2005	Defensive	Tries to resist having to deal with environmental issues
	Preventive	Waste management, focuses on cost savings
	Offensive	Environmental improvements in products, additional benefits recognised in terms of market share and image
	Sustainable business	Addresses economic, social and environmental aspects simultaneously

Connecting environmental questions with strategic planning can be considered a result of a company's development process. This development process progresses in different ways in companies; therefore environmental strategies can be different. There are many alternative environmental strategies that companies can choose, but there does appear to be a number of basic underlying themes or development stages in the "greening" of corporate environmental strategy. Drawing on the typologies presented in the Table 4, four key environmental strategies emerge that a firm can employ: resistant, reactive, proactive and sustainable/value-based. The strategy development presented by each author describes the company attitudes of principle towards the environment. The typical development process of environmental strategy in companies starts from lower levels and progresses gradually when the understanding of, and capabilities in, environmental performance increase. The approaches listed in the table also indicate some changes in development of the most 'advanced' approaches, emphasising a wider focus on sustainability and CSR issues.

A company can employ a *reactive* strategy in response to the pressures to improve its environmental performance. An environmental response can be

driven by minimum compliance standards, which often result in an ad hoc and piecemeal approach. Solutions are typically techno centric, cost driven, and reliant on the end of pipe technology. A company can also follow a *proactive* strategy in its responses to the environment. This is reflected in a more positive and deliberate effort to reduce environmental impacts. Environmental improvements are generally permanent and on-going, but not always fully integrated into the business management. Solutions may be innovative but they are unlikely to involve a holistic questioning of business practices. A company can pursue a *sustainable or value-based* strategy in its response to the environment. This is an innovative, maybe even radical strategy for a company to implement because it involves a fundamental rethink of all aspects of the business. It requires the holistic integration of the environment into the structure and the management of the business.

According to the second last approach presented in Table 4 (Gummesson 1998), driving environmental forces for a company are based either on an external factor (legislation) or internal factors (PR aspects or company values). A company having a legislation-based approach to environmental issues do not pay attention until the law requires them to do so. There are a lot of companies which are adapting an *approach based on PR aspects.* For these companies environmental issues are a fad or a cosmetic addition to promotion; if customers seem to be interested in them, they are offered to improve the image and sales. Companies don't carry out any fundamental changes but only aim at convincing their customers about the company's environmental friendliness and consciousness. This kind of green washing, where a firm strategically discloses environmental information, is a common approach in many companies (Clegg 2009). Companies adapting *an approach based on values* form a minority. These companies, like the Belgian Ecover and the British Body Shop, have found the business opportunities offered by environmental issues. Some companies, such as Shell, have gone even further, emphasising that improvements in the company's environmental performance are not only a way to gain customers but also to reduce costs and risks and create options (Shell report 2000, 6). Still, several more traditional companies have spent a lot of money in environmental programmes and implied some improvements, but most operations are continued as before. Gummesson (1998) argues that it is difficult to say if there is any commercial company which really stands by its environmental values, not just in words but also in deeds. (Gummesson 1998, 179-181)

In companies, the relationship between the general business strategy and the environmental strategy forms a sort of continuum. At one end of this continuum, the environmental strategy can be relatively easily separated from the general business strategy. Here the way a company takes care of its

environmental issues in relation to competitors or how it differentiates its products based upon environmental attributes can be a strategic decision separated from the company's basic strategy. In the opposite situation, a company's general business strategy and environmental strategy overlap. For example, a company concentrates on the environmental business field, or differentiates all its products on the basis of environmental attributes. Between these extreme limits there are a lot of situations, where the environment is of crucial significance, but it has not been understood as a part of the business strategy. (Mätäsaho et al 1999, 19-20)

The general principles of environmental strategy are listed e.g. by the International Chamber of Commerce in their Business Charter for Sustainable Development. Here, companies are recommended to adopt various aims in order to respond to the environmental challenge in a holistic way. Integration can be seen as the key to environmental strategy; every aspect of the environmental impact of an organisation must be recognised. Environmental strategy must begin with real commitment on the part of the whole organisation. Then it is possible to design strategies that are holistic rather than piecemeal (Welford). Environmental management can be called holistic management, where the business and its interaction with its environment are considered as a total entity. The principle 'everything is connected to everything else' well describes the process of managing a company by thinking of it as a total system, rather than by breaking it down into a series of functional chunks. The principle describes well also the concept of environmental knowledge – not a combination of separate technological or other skills but wide knowledge and skills of environmental issues together with commitment on their development and understanding about their strategic significance in business. (E.g. Porter and Kramer 2006, Linnanen 2005, Pohjola 2003, Rinne and Linnanen 1998)

Integrating business and environmental needs require more than good intentions and strong leadership. Companies should shift from a fragmented and defensive position to an integrated and affirmative approach and the focus should move away from an emphasis on image to an emphasis on substance. Strategy is about making choices and success in environmental responsibility is not different. Companies are currently called on addressing hundreds of issues related to responsible business including environmental questions, but only a few of them represent opportunities to make a real difference to society or to create a competitive advantage. Companies need to make right choices and build proactive and focused environmental initiatives in accordance with their core strategies for developing real and sustainable competitiveness. (Porter – Kramer 2006)

2.3 EMERGENCE OF ENVIRONMENTAL KNOWLEDGE IN COMPANIES

As the power and influence of companies have grown, so too have the calls increased for companies to be more responsible to a wider constituency than only their shareholders, and thus the term 'stakeholder' has gained currency in recent years. There are several factors, or stakeholders, which together serve to encourage industry to respond to the environmental challenge and they can be found both in a company's internal and external environment. A company has to be familiar with the requirements and expectations of the stakeholders in their environment to be able to create a holistic environmental approach covering various aspects of a company and its stakeholders. The stakeholder engagement keeps a company in touch with the rapidly evolving world of environmental risks and opportunities. Without this ability to understand and react to risks and opportunities as they develop, companies are left to deal with crises and the difficulties of catching up their competitors.

The main focus of a company's stakeholder interest has traditionally lain on the financial aspects, but increasingly stakeholder pressure is concentrating on the environmental performance of the firm. The major stakeholders making demands on a company's environmental performance are listed in Figure 3. The common environmental expectations and requirements of each group are presented in turn.

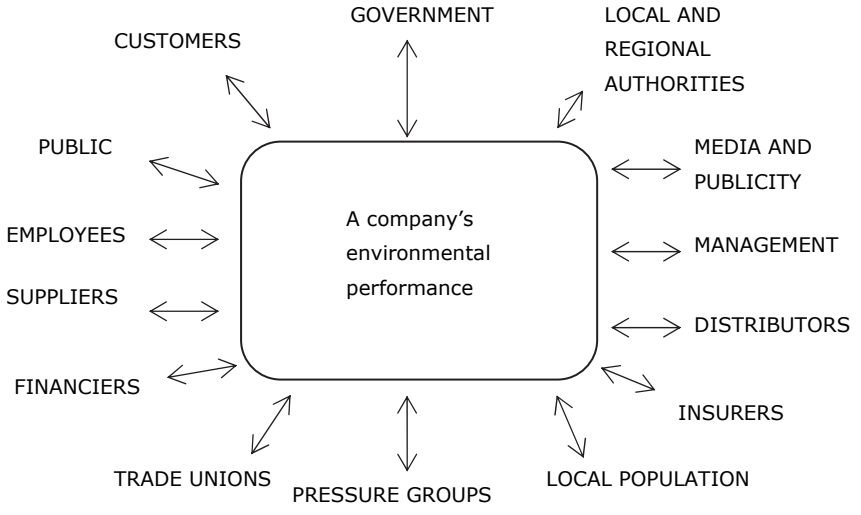

Figure 3: Stakeholders and their pressure on a company's environmental performance (adapted from Welford 1993, 8; Ketola 1999, 91-92)

Customers can be both final consumers and organisational consumers. The elements that underlay their purchasing decisions are a fundamental consideration for a company. Very seldom is this decision based on the environmental attributes of a company performance alone, but a company must answer all those further demands made on their performance, including, among others, price and quality requirements. However, those companies which improve their environmental performance and communicate this among their customers are increasingly improving their competitive position too. The customer interest focuses primarily on the final product and on the overall image of a company, rather than on the resources used by a business, the production processes, and the net impacts on environmental degradation, and thus it can a business to superficial and even false environmentalism (Iyer, 1999, 278-279). Roberts (2001) states, that companies that serve consumer markets are more likely to feel demand for environmental questions than those serving business markets. (Roberts 2001) However, the significance of environmental issues should not be neglected in business markets either. Their cost reducing impact can be crucial, and a good conduct of environmental regulations is often a prerequisite for business contracts.

The **government**'s main impact on a company's environmental performance is expressed through the development of environmental legislation and regulation. This has so far been the predominant factor encouraging environmental management within companies (e.g. Tinsley 2006; Preuss 2005; Curtin 2002; Kolk, 2000, 27; Turner et al 1994) Companies must satisfy an increasing number of legal obligations in relation to the effect that its activities have on the environment. In most countries, the extent and impact of environmental legislation will continue to grow. As a result, companies have to plan ahead to meet the demands of current and future environmental legislation. In U.K., companies think that environmental issues are a legitimate area of concern, but governmental regulation is needed. Businesses often perceive environmental issues as an additional burden and therefore they do not usually act in a proactive way concerning improvements in their environmental performance. (Rutherfoord et al. 2000, 310-326) The whole **public sector** can be a remarkable trend-setter in environmental issues by directing funds to the research and training of environmental issues, as well as for financial support for environmentally responsible companies. The public sector is also an important purchaser of goods and services, and by conducting environmentally sustainable purchasing politics the public sector can have a crucial impact on the creation and growth of the market for environmentally safe products and services. Also **local** and **regional authorities** expect a company to operate in compliance with local and regional environmental regulations. Their environmental expectations can also concern information,

cooperation and initiative in environmental issues from a company's side. (Tinsley 2006; Epstein and Roy 2001; Welford 2000; Ketola 1999, 91).

Increasingly, many companies are meeting environmental demands at all stages in their supply and distribution chain. Both **suppliers** and **distributors** can expect a company to have similar environmental practices to theirs as well as to give information and cooperate concerning environmental questions. Distributors' expectations can also concern non-polluting products, 'green' logistics and sales support and promotion.

The pressure to improve environmental performance can also emanate from the **financiers, shareholders, and insurers**. This group of drivers includes economic opportunities caused by company ecological responsiveness. Financiers and shareholders/owners expect revenues, which can be generated by improved corporate ecological activities such as cost savings, better production processes, and green marketing. (Bansal and Roth, 2000). Financial support can in many cases be obtained only by companies which operate in a responsible manner. Due to environmental legislation, a company causing environmental damage has to bear the cost of these damages, and it is also difficult and expensive to have insurance to cover issues of this kind. (Welford 2000). During the last decade, public awareness of environmental issues increased considerably. In order to manage increasingly more powerful **media and publicity,** as well as **public and pressure group** attention, companies must be able to communicate their environmental performance. This is crucial for the company image, and therefore the environmental claims used in communication must be justifiable and based on facts. In addition, the **local population** and local organisations, like hospitals and schools, are often interested in the environmental impacts of a company, and expect information and responsibility concerning environmental issues. **Employees**' and **trade unions'** concerns relating to a company's environmental performance often focus on the impact of company operations on working and living conditions. Furthermore, increasingly most people wish to work for ethically responsible companies. This concerns the company **management**, which should also understand the business opportunities in environmental questions. (Epstein and Roy 2001; Welford 2000)

There are also several research results that show that 'doing good' can contribute to the bottom line. It contributes positively to the market value of a firm and suggests that managers can gain competitive advantages and reap more financial benefits by investing in responsible business issues including environmental questions. This increases customer satisfaction, which in turn leads to positive financial returns. (Luo – Bhattacharya 2006) Both marketers and researchers have discussed a lot whether companies should take a more

strategic tack to CSR and how this can contribute to their bottom line (Sen and Bhattacharya 2001). There are many findings underlining the profitability of CSR investments. For example, CSR contributes positively to market value which suggests that managers can obtain competitive advantages and reap more financial benefits by investigating in CSR. CSR can also increase customer satisfaction, which in turn leads to positive financial returns. (Luo and Bhattacharya 2006) In addition, CSR can boost internal employee morale and commitment within the firm and thus encourage a better employee performance (Godfrey 2005). Especially improvement of environmental performance gains clear financial benefits. Identification of inefficiencies in environmental management allows on-going improvement and productivity gain. In addition, companies can promote themselves as environmentally responsible, which can create new marketing opportunities. (Aarras 2006)

Companies need to have a good understanding about who their stakeholders are and the expectations that they have. Roberts (2001) states that 'while it is still possible to graduate from many business schools believing that a company only has two groups of stakeholders, shareholders and customers, many companies need to understand and trade-off the often conflicting demands of a much wider group of stakeholders'. In addition to the above presentation of typical stakeholders, another approach to their classification is presented in Figure 4.

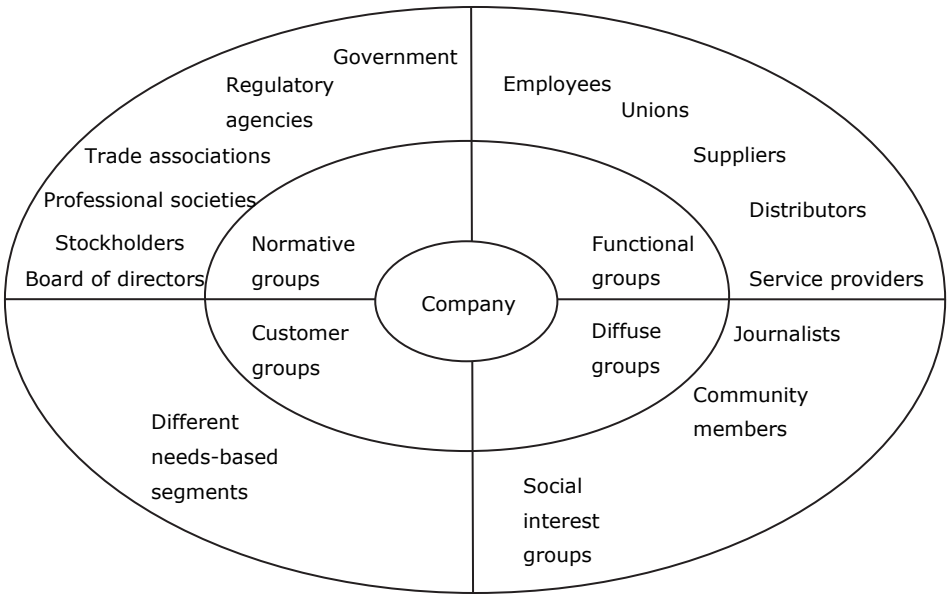

Figure 4: Corporate stakeholders (Dowling 2001)

Dowling (2001) divides corporate stakeholders into four groups, all of whom have some interest in environmental and social responsibility issues:

- *normative stakeholders* form the authority for a company to function and monitor performance (e.g. regulators, shareholders).
- *functional stakeholders* facilitate the operation of the company (employees).
- *diffuse stakeholders* have an interest in the company because of its impact on others (media, other companies).
- *customers* are segmented into different groups who have different interests

The driving forces in environmental issues, or more widely in sustainable development/ corporate social responsibility, for a company or an organisation can also be classified as internal and external drivers. A first internal driver can be that environmental questions/ sustainable development/ social responsibility is embedded in the corporate culture, values and attitudes, as an ingredient of the founders' philosophy. Other internal drivers are better risk management and better corporate reputation, as well as higher effectiveness and innovation through stakeholder relations. All external drivers relate to some types of 'pressure' from external, societal forces. These are incentives from the investor community, pressure from society, and pressure from governments and public policy. (European Multistakeholder Forum on CSR, 2004)

The theoretical contribution to the stakeholder discussion here is not only the variety of company stakeholders but the idea of heteronomy of stakeholder salience too. Due to the relative power of different stakeholders, organisations are not entirely autonomous actors solely addressing environmental issues based on their own strategy and policy schemes. Stakeholders create the normative expectations on organisations for the environmental involvement; engagement in environmental issues depends on a multiple combination of barriers and drivers. Figure 5 represents the essential elements having impact on an organisation's or a company's environmental involvement. Environmental involvement is developed by all those factors (drivers or barriers) which encourage or discourage a company to improve its environmental performance and knowledge. This involvement results from requirements and expectations of various stakeholders and these internal and external pressures and barriers contribute to a company specific multiple combination of drivers and barriers. The outcome of a company's environmental involvement can be high or low depending on the heteronomy of stakeholder salience. Low environmental involvement incorporates the idea

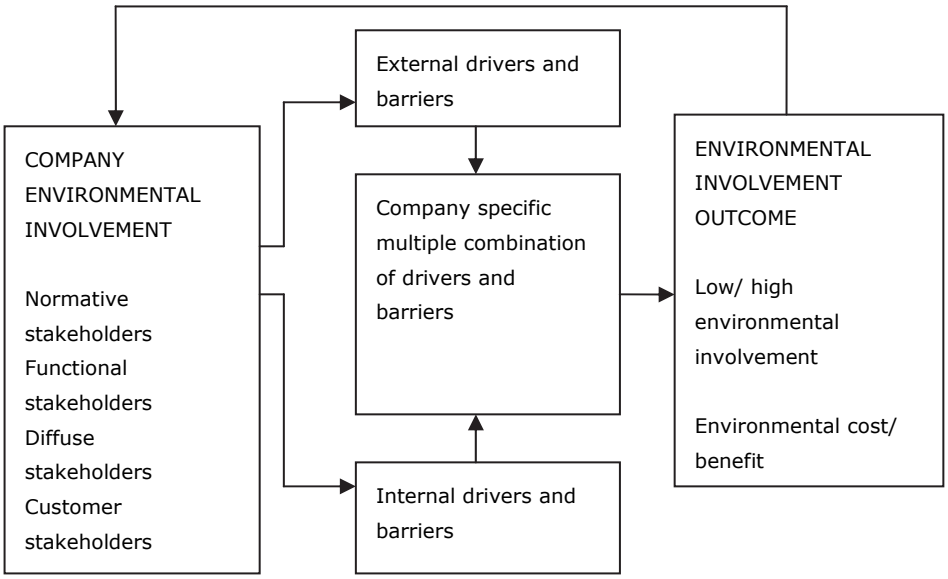

Figure 5: An integrated model of stakeholder impact on company's / organization's environmental involvement

of environmental performance improvements as cost factors; high environmental involvement as an opportunity for a benefit and for a competitive edge. The outcome of the figure is to describe the stakeholder impact on that whether a company has interest on the improvements of its environmental knowledge and performance.

In all, growing recognition exists among companies that environmental issues are here to stay and that they must be considered a normal part of doing business. Environmental issues or in a broader sense corporate social responsibility is getting more and more attention across the globe, and the management of environmental issues continues to form a more crucial competitive factor both in big companies and in small and medium-sized enterprises (SMEs) (e.g. Miles & Covin 2000; Bansal & Roth 2000). A strategic approach to environmental issues is needed in order to incorporate them in all company functions and decision-making, because over recent years, environmental issues and social responsibility have become part of changing internal and external requirements to firms (e.g. Buchholtz 1998, Johnson 2003, Kolk 2000, Neilimo 2004, Oksanen 2002, Pohjola 2003, Welford 2000). Environmental issues, CSR and sustainable development are a business opportunity, not an impediment, but they need to be linked to company goals and values. Implementation requires strong leadership and integration takes

commitment and time, and the *issues need to be truly mainstream, not just the duty of a specialist function*. (CSR Europe 2002)

This development has taken place globally and in Finland. Several surveys during the last few years conducted by industrial, business and employers' organizations show that the management of environmental issues continues to grow still a more crucial competitive factor both in big companies and in small and medium-sized enterprises (SMEs) (e.g. Teollisuuden ja Työnantajain Keskusliitto 1997; 2001). The total number of companies in Finland was approximately 237600 at the end of 2005, and small and medium sized companies accounted for 99.8 per cent of them. Bigger companies usually have their environmental management systems and these motivate them to require environmental responsibility also from their subcontractors and other stakeholders. This development causes new pressures and challenges for SMEs to update their own environmental management in order to improve their competitiveness. SMEs do not have similar resources as big companies to be invested in environmental management systems, and therefore especially SMEs expect their personnel to have multiprofessional knowledge to manage their environmental responsibilities too.

The Confederation of Finnish Industries (Elinkeinoelämän Keskusliitto, EK) has collected research information about Finnish companies' recruitment and knowledge needs now and in the year 2015. The interim report emphasizes in several contexts that environmental issues will become more significant success factors in companies and that environmental knowledge will be more crucial competitive edge (Confederation of Finnish Industries, 2004) The main reasons that motivate companies into responsible business including better environmental performance (a survey conducted by the Finnish Chamber of Commerce in 2003): the interest of the owners/ management (78%), the company image (61%), the economic impacts in the long term (51%), customer expectations (46%), competitive advantage to attract employees (38%), employee expectations (38%), developing trust to stakeholders (31%), financier expectations (28%), and NGO expectations (7%). An important aspect in this discussion is the huge impact of SMEs in Finnish society. The form the majority of companies and additionally operate usually in networks of a different kind, through which they have even bigger influence than their size would suggest. There is also academic research on the topic; how Finnish companies constitute the notion of CSR, its importance and how companies apply CSR in real life. The findings indicate that most Finnish companies are adopting CSR and focus on the three pillars of CSR; economic, social and environmental responsibilities, but the implementation of CSR in companies needs further academic research. (Mbare 2006, 263-286)

3 Curriculum development and environmental knowledge in business education

3.1 EDUCATIONAL SYSTEM AND ITS KEY FEATURES

The Finnish higher education system consists of two parallel sectors: universities and universities of applied sciences (= AMK institutions or ammattikorkeakoulut). These are complementary in their respective areas of strength and both sectors have their own profiles. Compared with universities, studies at the universities of applied sciences are more practically oriented; the universities of applied sciences educate experts for positions in working life and its development. The universities of applied sciences are mainly regional and multi-field institutions of higher education. They are regional because the aim with university of applied sciences' system is to strengthen the regional development and co-operation of the universities of applied sciences with SMEs. They are usually multi-field, because multi-field units were considered able to create new degree programmes to serve the needs of the changing working life. In addition to their educational duties defined by the Finnish educational policy, the universities of applied sciences conduct research and development work which serves instruction and supports working life. (Education in Finland 1999, 6)

Degrees at the universities of applied sciences are higher education degrees (Bachelor's degrees) with a professional emphasis. The starting point for the development of the degree programmes originates in the requirements and development needs set by working life. The aim of the degree programmes is to yield capabilities for various professional expert positions in working life. The extent of studies at the universities of applied sciences is determined in terms of credits, being usually 140 or 160 credits (210 or 240 ECTS credits). This usually means the full-time studies of 3.5 or 4 years. The degree structure

consists of basic, professional and optional studies, practical training (work placement) and a diploma project (Bachelor's thesis).

The universities of applied sciences decide on the contents of their curricula independently. The universities of applied sciences are developed as part of the national and international higher education community, with special emphasis on their expertise in working life and its development. The studies leading to a degree of the university of applied sciences are fulfilled in degree programmes. They are study entities planned and organized by a university of applied sciences and targeted to some field in the working life requiring professional knowledge, skills and competencies, also in order to develop the field in question. The Ministry of Education confirms the degree programmes but their contents are decided by the universities of applied sciences. (Government Law on Universities of applied sciences 351/2003, 19§; Government Decree on Universities of applied sciences 352/2003, 6§)

Working life orientation

Universities of applied sciences are, more than universities, oriented towards practical working life. In the Government's education and research development plan this is expressed as follows:

> "Universities of applied sciences should strengthen their links with working life and their competence in workplace development, especially as regards the needs of SMEs and regional development. Universities of applied sciences should also promote R&D in cooperation with working life. Universities should focus on scientific basic research, scientific researcher training and basic teaching."

Thus, the basis for the development of the universities of applied sciences' teaching and other community service functions is closely connected with the working life of the region and its development. (University of applied sciences education in Finland, 2004, 116)

Universities of applied sciences have an essential role in increasing competence in SMEs and creating development potential. Because the universities of applied sciences form a comprehensive network, they can fulfil the needs of the SME sector in their respective regions. Producing skilled labour for SMEs in areas outside growth centres is a particular challenge for the universities of applied sciences. (University of applied sciences education in Finland, 2004, 117-118) Also on the European level, companies see an opportunity for involving business more closely in shaping the curricula of higher education to ensure that they respond better to labour market needs (UNICE 2004, 38). However, it is important to remember that working life

orientation does not mean only following the needs and values of the working life and adapting to them, but also *renewing and impugning the working life* (Rauhala et al, 2004, 25). In all, the universities of applied sciences seem to have succeeded quite well in their task: during their relatively short lifetime their working life contacts have increased remarkably and evolved to the mutual change and development of knowledge benefiting both universities of applied sciences and working life, and this development is to be further strengthened. (Koulutus ja Tutkimus 2003-2008, 45; 2007-2012, 11-12)

Regional impact

From the first beginning, the goal of the educational system at the universities of applied sciences has been to boost regional expertise by means of a network of the universities of applied sciences throughout Finland offering diversified education designed to meet the needs of working life. Universities of applied sciences have become important actors alongside industry and services in regional growth and development. Other indications of this trend include the concentration of the centres of expertise around the institutions of higher education, national programmes for the centres of expertise, technology centres, science parks and other organizations benefiting from the expertise of higher education institutions. (University of applied sciences education in Finland, 2004, 109)

The impact of the universities of applied sciences is a current topic in the evaluation of the regional development impact of centres of expertise and the work of the universities of applied sciences in general. The impact of their educational provision is initially reflected and shown in the employment of graduates from the universities of applied sciences, but in the long term the impact will also become evident in trade and industry structures and the rate of social change. In the planning of education it is paid more attention than earlier on changes in societies and needs of working life and this orientation to both regional and working life needs must be kept also in further development of the universities of applied sciences (Koulutus ja tutkimus 2007-2012, 11-12; Purhonen 2002, 164-170). Also Alanen (2002) considers the universities of applied sciences to play a crucial role in satisfying the needs of knowledge in local companies and public sector. However, the education must correlate more precisely both with regional and business-specific needs. Education should react flexibly on regional labour needs and therefore is must be connected better with regional strategies and development plans. (Alanen 2002, 171-181)

Research and development

The duties of the universities of applied sciences include conducting research and development work to serve their instruction and to support working life.

Research and development (R&D) at the universities of applied sciences is applied R&D based on the actual needs of working life. It focuses on practical issues in working life and aims to promote regional development, particularly by promoting and reinforcing SMEs and welfare services. On the other hand, R&D forms an important basis for improving the competence of the universities of applied sciences and thus part of the knowledge being taught. R&D in the universities of applied sciences is closely connected with the instruction and it also supports the study process by providing opportunities for examining phenomena in the relevant sector. The profile of the universities of applied sciences in R&D is based on a close relationship of instruction, learning and research. It is long-term, applied research and development work made conducted by students, lecturers and project personnel, serving working life and SME sector (Kinnunen 2002, 236-255).

The regional aspect is a central feature of R&D at the universities of applied sciences, the main aim being to serve the region where an individual university of applied sciences is located. In most cases, the objectives of R&D at the universities of applied sciences have been linked to regional objectives, with an emphasis on supporting industrial SMEs and service production. (University of applied sciences education in Finland, 2004, 120-121) Multi-skilling is also considered a resource and strength of R&D at the universities of applied sciences. As examples we might mention the production of welfare services, cultural services and various technology productization and commercialization projects. The multidisciplinary structure of the universities of applied sciences has a crucial role also in R&D, creating wide possibilities to solve working life problems in an innovative way by linking instruction, studying and research of various fields (E.g. Laakso-Manninen 2002, Niemelä 2002).

Pedagogical approach

Pedagogical solutions at the universities of applied sciences have been discussed a lot during the whole life-time of the Finnish universities of applied sciences. The Finnish tradition to strict division of scientific and professional education has been a big challenge to the universities of applied sciences: how to educate professional experts who have both practical know-how and scientific knowledge (e.g. Eteläpelto 2008; Eteläpelto and Onnismaa 2006; Kotila 2003; Raij 2003).

The concepts of learning and teaching at the universities of applied sciences are based on several assumptions on how learning takes place. Generally learning is seen as a constructive process, where the knowledge is not transferred to the learner but the learner must create himself his own thinking models and learning strategies. The constructive concept of learning

emphasizes flexible teaching methods which support the learning process and take into account the facilities of the learner. (Basics of Curriculum 2004) As learners, the students are constantly building on their previous knowledge and skills, and therefore they also have an opportunity to contribute to the contents of their own studies via an individual study plan in the framework of the degree regulations. Other key elements in pedagogy at the universities of applied sciences are learning processes and professional growth. The students progress in their studies via various different learning processes and develop gradually to skilful experts. They build their knowledge along with the changes in working life, participating in several social networks, developing the working life and thus expanding their understanding about reality (E.g. Eteläpelto and Onnismaa2006; Raij, 2003, Raivola et al. 1998, Nonaka et al 2000).

3.2 EDUCATION AND CURRICULUM DEVELOPMENT

The law and decree on university of applied sciences studies give the general guidelines how the curriculum development takes place in the universities of applied sciences. A curriculum is a document, which describes the interpretations of expertise written by an educational community. It shows how the writers understand the nature of expertise, the core processes producing and developing expertise, and knowledge required in expert positions. By defining qualifications and expertise it is possible to analyze knowledge required in a specific field of expertise. This 'core competence analysis' forms the essential content-based framework for curriculum development. (Karila – Nummenmaa 2002, 17-20)

According to the definition of the Ministry of Education, a curriculum is a planning tool for teaching and learning (Ministry of Education 2002a). A curriculum defines the study units and study modules leading to a degree, sets the objectives, defines the extent, contents and interconnections of study units and their timing. It should also describe the accumulation of studies, pedagogical solutions and means of student counselling and evaluation. A good curriculum makes visible also the path for the professional growth of a student and sets frames for a student's personal study plan. (Auvinen et al 2005, 40) A curriculum can be seen also as a plan, which defines the basis for the establishment of the learning and knowledge environment of the students and thus a curriculum describes learning environments and processes in addition to study objectives and contents (Hannafind and Land 2000, 3-4). When a curriculum outlines learning processes, it can help a student to understand his/her own learning progress and guides how to forge the

professional view and knowledge, defining simultaneously a teacher's role and task in counseling and analyzing of study processes and knowledge. (Hale and Dunlap 2010; Tomlinson et al. 2008; Laurillard 2003; Von Hentig 1973; Ghisla 1977)

There have been huge changes in the implementation of Finnish vocational education originating from the renewed educational policy. The guidelines on the changed legislation in early 1990's were focused on the reduction of regulations and augmentation of performance measurement, the distribution of decision making power on regional level, the improvement of flexibility and cost-effectiveness and the increase of students' opportunities to choose their studies. (Lampinen 1998, 2002) These changes have had impact also in curriculum work. Now the universities of applied science can decide both about curriculum contents and methods to implement it. Curricula planning and development is conducted in co-operation with the staff, students, working life and other interest groups. The orientation has also changes; the focus is not more on the planning of teaching but on students' learning process and support. (Koli and Siljander 2002). Now the basis for planning is on curricula, which aim at the holistic consideration of human development and support professional growth, and in the universities of applied sciences this means that curriculum flexibility, the integration of study subjects, working life foundation and student salience are all strengthened (Auvinen et al. 2005). The starting point for curriculum planning is the learning process, where the objective is aimed competencies (Ruohotie 2003).

The curriculum and its reform in particular must be *prevalent as a result of the awareness of the needs of the society and the economy and taking relevant action in accordance with those needs*. Thus the curriculum becomes a core issue as it needs to be managed in an institutional environment that is not averse to change and innovation, the pre-requisites of a relevant curriculum as the product concerned with quality and satisfaction of its 'consumers', i.e. the students, the public and the working life/ employers. In other words, the curriculum can be viewed as an institutional product which must be well managed to withstand the rigours of quality assurance in the environment outside the higher education institutional walls. It is not only the curriculum content but the application, usefulness, and contextual sensitivity that reflect the kinds of experiences from which the students will benefit academically or professionally, and it is hence posited here that the curriculum as the 'face' of the institution is mirrored in the kind of student produced, their competencies and qualifications.

The legislation lets the universities of applied sciences to develop degree programmes and their curricula quite freely, and therefore there are crucial

differences in curricula between the universities of applied sciences and degree programmes. However, they all share a common goal to serve the needs of changing expertise and are based on the idea of life-long learning and continuous improvement. The objectives, contents and pedagogical choices in curricula must be based on empirical and scientific knowledge of expertise and its development, business life and society, considering regional, national and international aspects. (Helakorpi – Olkinuora 1997; Volmari et al 2009) The basis of a curriculum is changing from strict, discipline-based subject allocation (Lehrplan) towards a more holistic curriculum approach supporting professional growth (Curriculum).

In the universities of applied sciences, this has led to the development of curricula, which integrate different subjects, are flexible and are based on working life's needs. (Karjalainen 2007; Raivola et al 2001) This definition is close to the concept of a postmodern curriculum. Here postmodernity is understood to focus on difference and diversity, recognize shifts in time, space and boundaries, and openness to flexibility, creativity, agility and responsibility. According to MacDonald (2003), a postmodern curriculum may be viewed as moving towards an open system with constant flux and complex interactions; requiring interactive and holistic frameworks for learning, with students becoming knowledge-producers rather than knowledge-consumers; and transformative rather than incremental with respect to change, such change requiring errors, chaos and uncertainty through the actions of the learners. Doll (1989) states that a postmodern curriculum will accept the student's ability to organize, construct and structure, and will emphasize this ability as a focal point in the curriculum. The concept of a postmodern curriculum, referring to a curriculum which aims to react in a flexible way on the changes in the society and in the working life and to add a student's opportunities for elective studies, is not new but presented earlier e.g. by Rauhala (1994), Ekola(1992) and Young (1992).

According to Karjalainen (2007), there are three dimensions in the concept of a curriculum; written, taught, and learnt. Commonly, the concept refers to the beforehand written plan about what it is aimed to teach and learn. Traditionally, a curriculum has been described as 'teaching activities', which is assumed to lead to aimed learning outcomes. However, teaching does not automatically lead to the aimed learning but students assimilate the taught contents differently and individually. The combination of the taught and the learnt curriculum is called the realized curriculum. A good curriculum includes the objectives, which make the implementation possible and lead to the aimed learning results. This means that continuous monitoring of learning outcomes is needed in addition to a good plan. Curricula can be classified also according to their structure; a study unit based, a module based, a block model

based, and a competence based. In practice, these models are rarely implemented as pure applications but most curricula are combinations of several models. The choice of the curriculum structure should be done according to its appropriateness to the learning objectives of a degree programme in a given time and with the given resources. Requirements of both external and internal co-operation should be observed too; strict and fragmented curricula e.g. complicate co-operation with the working life. Multidisciplinary co-operation between degree programmes can also be prevented by big structural differences. International student mobility is one of the key objectives in the establishment of common European university network, and therefore curricula should be comparable also on European and international level. (Karjalainen 2007)

According to Section 7 of the Government Decree on Universities of applied sciences (352/2003), the studies of university of applied sciences must provide students with theoretical foundations with a view to functioning in expert positions, resources for following and promoting developments in the relevant field, adequate communication and language skills and capabilities for international activities within the relevant field. Studies at the universities of applied sciences leading to the degree of university of applied sciences must include basic and professional studies, elective studies, work placement and a bachelor's thesis. The extent of studies is measured in credits, and depending on the study field a degree contains either 180, 210 or 240 credits. (Government Decree on Universities of Applied Sciences 2003/ 352).

The development of curriculum at the universities of applied sciences usually takes places through following phases.

1. Definition of the basic goal of the education
2. Definition of competencies and their objectives
3. Definition of the structure of a curriculum
4. Definition of study modules and study units
5. Definition of evaluation and development methods of the curriculum

There are university specific guidelines and instructions about how these phases are organised, described and timed. These guidelines normally include detailed instructions on the description, development and assessment of study units and modules. The Finnish universities of applied sciences share the common principle of continuing development on all levels of curriculum work. This means that all phases are planned, implemented, assessed and developed usually on an annual basis.

The integration of the main tasks of the universities of applied sciences requires, in addition to the strengthening of regional impact and research and

development activities, renewal of the structures of education and pedagogical approaches, and especially common understanding of pedagogical starting points. A constructivist pedagogical approach has been typical of the Finnish universities of applied sciences. Learning is a process of knowledge construction where the learner has an active role with learning based on the learner's earlier learning and experiences. An individual builds new knowledge on the basis of previous knowledge, based on his/her own initiative and actions, in interaction with the surrounding environment. Factors related to the individual activity of learning and social interaction combine in the construction of knowledge. (Hakkarainen et al 2004; Ally 2004; Tirri and Nevgi 2000.) Learning can be defined as a process where behavior changes as a consequence of experience (Maples & Webster 1980). The humanistic way of understanding people as the creators of their own future forms the philosophical foundations of pedagogy typically applied in the universities of applied sciences. Often this pedagogy also includes assumptions which are in congruence with cognitive learning. Cognitive theory defines learning as a behavioral change based on the acquisition of information about the environment. Through diverse learning environments, active learners are exposed to new situations where new insights can be gained in a dialogic process. The basic assumptions of constructivism argue that humans generate knowledge and meaning from their experiences. This means that knowledge is always tied to the person who possesses it. (Ruohotie 2000.) According to Vygotsky (1982), also cultural ways of behavior guide the learner; thus the process of learning can never be separated from the specific culture by which it is surrounded. This socio-cultural theory is commonly adapted in the pedagogical approaches of the universities of applied sciences.

The learning methods in universities of applied sciences aim to support the chosen pedagogical approaches. There are numerous learning methods applied in the universities of applied sciences and it is impossible to define any typical method used commonly by all of them. The learning methods are often connected with competence based learning originating from working life needs, and thus also the methods used vary a lot according to the study field and degree contents and objectives. Some widely used methods at the universities of applied sciences such as problem-based learning (e.g. Poikela et al. 2002, Virtanen 2001, Boud 2000, Coles 1999), situational learning (Brown et al. 1989; Lave et al. 1990; MacLellan 1995), collaborative learning (Totten et al. 1991; Dillenbourg 1999; Tynjälä 1999) and project-based learning (Vesterinen 2003; Blumenfeldt et al 1991; Laffey et al. 1998) usually share a common feature in their purpose to create learning situations and methods which are typical for authentic working life. Because students' future problems in working life do not follow any course subjects or research disciplines they should be able to learn, already during their education, to solve problems in the way they occur

in their future professional practice. One of the pedagogical approaches emphasizing the working life orientation is Learning by Developing (LbD) model developed by Laurea University of Applied Sciences and it aims to produce new practices and competences and demands collaboration between lecturers, students and experts from the world of work in order to progress (e.g. Raij 2007). This is close to Progressive inquiry, a pedagogical and epistemological framework to support teachers and students in organizing their activities for facilitating expert-like working with knowledge and emphasizing shared expertise and collaborative work for knowledge building and inquiry (e.g. Hakkarainen 2003)."

In pedagogical choices at the universities of applied sciences, also many other pedagogical methods are used in addition to these above mentioned methods, but they all usually share the purpose to create learning substance and situations which are typical for the working life. In this context, the concept of blended learning is worth discussing, because it refers to the mixing of different learning methods and environments. The phrase has many specific meanings based upon the context in which it is used. Traditionally, a blended learning approach combines face-to-face instruction with computer-mediated instruction and e-learning (e.g. Driscoll 2002; Graham 2005; Levonen et al. 2005). Heinze and Procter (2004) have developed the following definition for blended learning in higher education:

> "Blended learning is learning that is facilitated by the effective combination of different modes of delivery, models of teaching and styles of learning, and is based on transparent communication amongst all parties involved with a course."

Thus, a wider approach to the concept does not necessarily include any e-learning features, but goes step further and close to the concept of mixed learning. However, blended learning as a concept is vague and quite undefined in literature. It is often pointed out that the term has become a bandwagon for almost any form of teaching containing different kinds of things that can then be mixed. There is no consensus over what those things are, which should be mixed: examples include different media, varying pedagogical approaches, or the mix of theoretical with practical work. Fundamentally, all education can be described as the integration of different methods of learning and communication, i.e. all learning and teaching can be seen as 'blended'. In literature there are several descriptions of integration of modes of concrete blended learning (Bonk & Kim, 2006; Bonk et al, 2002). The target for integration, or blending, can be different modes of knowledge and actions, learning methods, face to face and distance learning, practical and

theoretical learning, and team learning and individual learning. (Levonen et al, 2005)

In spite of the emphasis of working life methods in education, a danger in pedagogical decisions at the universities of applied sciences is that staff development is seen mainly in terms of theoretical knowledge. The tendency has this far been to regard the staff as needing higher academic qualifications so that they are at least comparable with university teachers. However, vocationally-oriented higher education must acknowledge the importance of practice in curriculum, and this implies that the staff's professional expertise is at least as important as academic qualifications. (Pratt 1997, 327; Maclean 2007)

The latest attempts in order to develop pedagogical approaches in the universities of applied sciences have focused on the development of competence based curricula and learning methods. The newest approach is called innovation pedagogy, which can be seen as a competence based approach to pedagogy. Innovation pedagogy is a learning approach, which defines in a new way how knowledge is assimilated, produced and used in a manner that can create innovations. The educational system has traditionally provided knowledge and skills that have been adapted to innovation processes only later in future working life environments. However, a new kind of operational model can be developed by simultaneously applying the principles of both constructive learning theory as well as innovation theory to education and curriculum. Through the model, it is possible to determine how to support the development of students' innovation competencies from the very beginning of their studies. Consequently, the traditional gap between 'theoretical teachings' and 'the practical requirements of working life' would be filled and it would also enhance the professional growth of students already during their studies. (Penttilä et al. 2009) When applying innovation pedagogy as a pedagogical approach, it has impact on all university activities, including the learning methods, interest group co-operation, and curriculum development.

3.3 BUSINESS EDUCATION AT THE FINNISH UNIVERSITIES OF APPLIED SCIENCES

3.3.1 Degree studies in business

The degree of the universities of applied sciences in the study field of social sciences, business and administration is Bachelor in Business Administration (BBA). This degree is offered by degree programmes conducted in Finnish, Swedish, English and German. These degree programmes can have different

specializations, where students specialize in specific area of the study field. The extent of the degree is 210 credits, the study period being 3.5 years.

Bachelors of Business Administration can graduate also from degree programmes in data communications, which were transferred to the study field of natural sciences, and from degree programmes in library and information services, which now belong to the study field of culture.

There were almost 27 000 students participating in degree programmes in business administration at the universities of applied sciences in the year 2007. These BBA programmes with various emphases were offered in 25 of the universities of applied sciences in Finland. (AMKOTA database 2007)

3.3.2 Competence and qualifications in BBA degrees

As it was mentioned earlier, the challenge to the universities of applied sciences is how to educate professional experts who have both practical know-how and scientific knowledge. However, the distinction between the concepts of knowledge and know-how is not unambiguous and needs to be discussed first, especially if knowledge is tried to be managed as a strategic asset. Garud (1997) states that although the term' know-how' has been widely used to represent knowledge, it is but one component of the intellectual capital and there are at least two other components of knowledge. These are know-why and know-what, know-why representing an understanding about the principles underlying phenomena and know-what referring to an appreciation of the kinds of phenomena worth pursuing. According to Garud, the concept of know-how represents an understanding of the generative processes that constitute phenomena. Lundvall and Johnson (1994) state that there are different kinds of knowledge which are important in the knowledge-based economy: know-what, know-why, know-how and know-who. Know-what refers to knowledge about "facts". Here, knowledge is close to what is normally called information. Know-why refers to scientific knowledge of the principles and laws of nature. Know-how refers to skills or the capability to do something. Know-who becomes increasingly important. It involves information about who knows what and who knows how to do what. Besides it involves the formation of special social relationships which make it possible to get access to experts and use their knowledge efficiently.

The concepts of competence and qualification are often linked with the concept of knowledge. They have both been discussed widely in the literature, but there still are several different definitions for them. Ruohotie (2003, 109-110) refers to Ellström (2001) and gives five meanings for the concept of competence. Competence can be defined as formal competence while it is based on the individual's education and its degree requirements and on the

person's eligibility for further studies. Formal competence can be defined as well by qualification requirements set by the labour market or trade unions. Another viewpoint to the competence is to describe it as individual capacity, the individual's real potential competence. A common approach to competence is also to define it with the requirements needed in the successful performance set by the workplace. The fifth definition is such occupational competence which an individual can utilise and develop in his work.

Profession-specific knowledge becomes soon obsolete in the changing working life, and thus the concept of qualification often refers to the worker's ability to manage the changing responsibilities at the workplace (Hövels 2001). The extent of the concept has expanded from professional and technical-instrumental knowledge and skills to new knowledge and skills which help workers to meet the changes and react on them in their working environment. These new requirements are often called key qualifications (Ruohotie 2003).

Raij (2003) discusses the concepts of knowledge and competence in the universities of applied sciences and presents how they can exceed the bisection between scientific and professional tradition. Four components together form an integrated whole which enables competence and expertise. Competence of students at the universities of applied sciences consists of combination of these four elements, which are scientific knowledge, professional skilfulness / practical know-how, understanding of the context and its phenomena, and mastery of various situations. This is described in Figure 6.

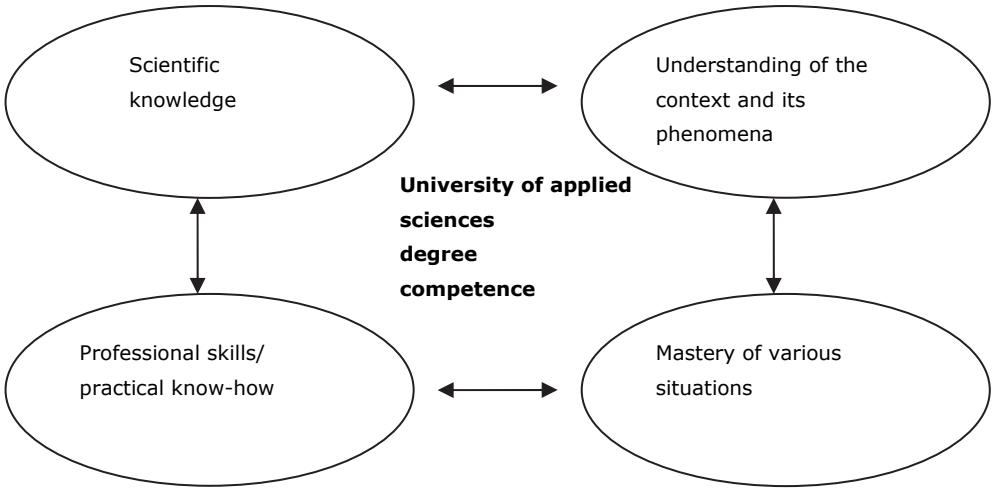

Figure 6: Degree competence as an integrated whole at universities of applied sciences (Raji 2003, 45)

Also Nurminen (2003) has a similar approach to the concept of knowledge at the level of universities of applied sciences. According to him, knowledge is created by the ability to combine together the various fields of competence; knowledge, skills, experiences, value implications and social networks. Social networks, or the context mentioned in Raij's definition, refer both to the working life expecting knowledge.

Required professional knowledge and expertise have changed in many professions because the new combinations of skills are needed, functional flexibility in professions has increased, and integration and "mixing" have become general between different professional groups and levels. There are several different classifications of skills defining key qualifications and core competencies required in professions. Nijhof and Remmers (1989) classify skills in three groups:

1. Prerequisite or basic skills, which give the readiness to manage in the society (intellectual, cultural and social prerequisites) and form the basis for transition to the working life and further education.
2. Core or common skills, which can be common for all professions or for a limited number of professions.
3. Transition skills, which help in decision making concerning one's own career.

Ruohotie (2003) focuses especially on the skill profile of an expert, and he presents three categories for skills:

1. Profession-specific skills and knowledge
2. General skills required in working life (such as cognitive skills, social skills, media competence, creativeness and innovativeness, management skills)
3. Self-regulation ability contributing to professional development, which enables conscious and critical observation and evaluation of one's own activity.

Degree programmes at the universities of applied sciences in Finland have defined generic and degree programme specific competences. Degree programme specific competences form the basis for the development of the students' professional expertise. Generic competencies are areas common to all degree programmes and form the basis for operating in the working life, collaboration and the development of expertise. A national team has defined the following as the generic competencies of the universities of applied sciences:

- Learning competence
- Ethical competence
- Communicative and social competence

- Organisational and societal competence
- Internationalisation competence

The aim of the degree programme specific and generic competencies is to help the students to have a concrete vision on what kind of skills are expected and to analyse and evaluate their own learning and skills. Competence matrixes are usually published in the degree curricula of each university of applied sciences.

Earlier presented descriptions could all be utilized when defining competence and qualifications of degrees but what then defines the specific competence and qualifications required in BBA degrees? Ojasalo (2003) states that in the changing environment it should be especially emphasised the continuous need for learning both for an individual and for an organisation, innovativeness, teamwork, network and project work abilities, management of increasing and changing knowledge, skill to alter the tacit knowledge to exploitable knowledge, and entrepreneurship (Ojasalo, 2003, 57). However, also these qualifications fit to describe most degrees of the universities of applied sciences.

BBA qualifications could be described more exactly by using the expert's skill profile presented earlier by Ruohotie. Self-regulation ability in BBA qualifications refers to orientations to one self; flexibility, responsibility for tasks and group responsibility, and ability to process the feedback. General skills in BBA qualifications refer to several skills: cognitive skills, such as knowledge of languages, network know-how, problem-solving skills, and understanding about wholes; social skills, such as co-operative and teamwork skills, communication skills, problem-solving skills, cultural know-how; media competence, such as digital communication skills; creativeness and innovativeness; and management skills, such as management of people and tasks, management of entrepreneurship. Profession-specific skills and knowledge include at least core competencies in economics and administration, business processes, international business, marketing, finance, accounting, human resource management and information technology. (Laurila 2003; Ammattikorkeakoulujen valintaopas 2004.) The problem in the definition of profession-specific skills and knowledge is the extent of the study field of social sciences, business and administration. Under this one study field there are several different degree programmes (16 in the year 2004) and these have different specialisations, which all have more or less different emphasis on their definition of profession-specific skills and knowledge. As stated earlier, degree programmes at the universities of applied sciences in Finland have defined generic and degree programme specific competencies, and degree programme specific competencies form the basis for the development of the students' professional expertise.

The latest development in the description of qualifications provided by the universities of applied sciences is based on European level joint work originating from the Bologna process, encouraging the member states to elaborate a framework of comparable and compatible qualifications for their higher education systems, describing qualifications in terms of workload, level, learning outcomes, competencies and profile (Dublin descriptors for the Bachelor's, Master's and Doctoral awards, 2004). This process has developed new instruments for the universities of applied sciences in order to create so called' qualification based curricula', because bachelor level qualifications are now defined on the European level. This approach describes qualifications on the basis of knowledge (cognitive competence), skills (functional competence) and competence (described from the viewpoint of responsibility and independence). The latest implementation of the process in Finland is the report of UAS Rectors' Council Arene giving recommendations how to promote qualification based thinking in the universities of applied sciences, calling for the definition of objectives for qualifications (ARENE 2009).

3.4 ENVIRONMENTAL ISSUES IN BUSINESS EDUCATION IN GENERAL

In public discussion concerning the development of education it is often stated that understanding about environmental issues has to be provided in all education. However, several researchers agree on that business education does not provide environmental knowledge well enough (e.g. Aspen 2003; Angell et al 2001; Cowe 2002; Rohweder 2000). The role of business schools in the environmental questions as well as in wider sustainable development issues has only recently become an issue discussed (Galea 2004; Egri & Rogers 2003). This can be due to the fact that education for environmental issues and sustainable development in business schools has a rather short history (Rohweder 2001b; Roome 2005:160). Presently, education related to sustainable development is based on traditional economic and business life thinking (Springett 2005: 148). As this education has turned out to be difficult in business schools, it would appear that environmental questions and sustainable development are the challenge of a decade for them (Roome 1998; Pfeffer & Fong 2002; Wheeler, Zohar & Hart 2005; Rohweder 2003).According to Marshall (2004), a profound revision of curricula and teaching methods is needed to ensure that sustainable development including environmental issues gets taken into consideration adequately.

Especially business education should react on the changes in business life, and on international level there are studies stating that students graduating from business programmes are more and more expected to have understanding and knowledge in environmental issues (e.g. Cowe 2002). If the next generation of business leaders is to excel at managing companies for better competitiveness, it will need the knowledge and skills to tackle not only the financial but also the social and environmental challenges faced by today's corporations. It's the business schools that provide the foundation for the analytical reasoning, strategic thinking, and decision-making frameworks used by future business leaders the world over. (Aspen 2003) However, only a minority of the leading business schools internationally take environmental and social responsibility issues seriously. Most are still preoccupied with the traditional subjects of finance, marketing, strategy and similar, without seeing that these issues affect all those subjects. There are several reasons for this. First, the nature of universities makes it hard to introduce new concepts which are not subject-specific. Second, environmental issues are often seen as a matter of technology, which is not high on most business schools curricula. Third, business schools have tended to claim that companies are not interested in environmental and social responsibility issues. (Cowe 2002) The last claim is getting rare because the message of company needs and expectations has become clear in several international researches. Companies are nowadays assessed not only on the financial outcome of their decisions but also on the ways in which they measure up to a broader set of societal expectations. (Waddock and Graves, 1997; Porter and Kramer 2006)

The scope and reach of business education demands the understanding how business schools are introducing the concepts of social and environmental stewardship to business students. This has been studied on biennial basis by the Aspen Institute and the World Resources Institute from the year 1998, when the first study 'Beyond Grey Pinstripes' was done to track environmental and social issues in business education. Developments in environmental and sustainability education have since accelerated. The findings from the same survey from 2003 show, that business schools have broadened their coverage of social and environmental stewardship. However, the issues still tend to be captured in elective courses or volunteer activities rather than in central business disciplines such as marketing or accounting. Only the most innovative business schools are taking a more systemic look at how environmental and social factors intersect over time and are helping students see these factors as an integrated reality for the firm. (Aspen 2003a) Also CSR Europe (2003) has produced a set of specific proposals for ensuring continuing training and education in environmental, CSR and sustainability issues. They suggest that universities and business schools need to move beyond electives and add-on courses, and integrate the issues into their core

curricula. They must ensure the development of curricula that integrate these issues into core topics, rather than giving them cursory or peripheral treatment via special electives or add-on modules. (CSR Europe 11.1.2003) CSR research is an interdisciplinary field, opening up many different perspectives on how to further business know-how for the benefit of companies, society and the earth. (Ketola 2006, 3).

Thus, environmental and CSR issues should be embedded in the teaching of traditional business subjects. According to Copeland, CEO of accountants Deloitte & Touche 'the way to make this effective in colleges and universities is to get back to the issue of managers having responsibility for influencing the environment of the market they work in – as well as managing the enterprise. Most people do not come out of schools thinking about anything other than managing the enterprise'. (Murray 2002) But however embedded these issues become in business curricula, until recruiters start to demand the skills acquired by business graduates, this approach will only ever taken up by a handful of schools. Businesses are more and more aware that they need an integrated approach to environmental and CSR issues, and this idea is more established in Europe than in the U.S. (Murray 2002) Matten and Moon (2004) have concluded that the situation is gradually improving. Their research was set out to address questions about the extent and the ways in which European business education addresses the broad topic of CSR. Their evidence led them to give a qualified rejection to the claim that business schools are necessarily incapable of educating business managers in business social responsibility and ethical behaviour, and their findings are of some but not all business schools taking the initiatives to this area. (Matten and Moon 2004)

There is also demand among students towards environmental and CSR issues. The business students say that they would like business schools to demonstrate how environmental and social responsibility can be financially beneficial, and they also demonstrate a need for more clarifications and guidance on the issues. (Cowe 2002) A survey by Environics (2003) states that a strong majority of business students in the U.S. think that environmental and social issues should be taught more at universities and there was a keen interest to learn more about these irrespective of the students' area of study (Environics 2003) 'MBA student attitudes about business & society 2003', a research by Aspen Institute, found that MBA students anticipate values conflicts in their future work and would strive to create a better balance among multiple stakeholders than current leaders (Aspen 2003b).

Companies and their needs and expectations could be imagined to be the major driving forces in the development of business education. However, according to the EABIS/Nottingham study it is clear that the most significant

driver for including environmental and social issues in business curricula was the initiative of individual faculty members. This is supported also by Matten and Moon (2004), stating that thus far, the main drivers of CSR has been individual faculty members. Business actors do not emerge as significant drivers though they are rated the most important partners in teaching (85%) followed by NGOs (66%). (EABIS 2003) This is supported by Aspen (2003b) too, whose research notes that the input tended to be the result of "dedicated individual effort" by certain lecturers, rather than "the outgrowth of resolute institutional commitment". However, there are also signs of changes in the future; in the light of earlier research, as Matten and Moon state, probably the most unexpected finding in their research was the strong interest in CSR among practitioners and industries (Matten and Moon 2004, 25).

3.5 ENVIRONMENTAL ISSUES AND APPROACHES IN BUSINESS EDUCATION AT FINNISH UNIVERSITIES OF APPLIED SCIENCES

The tradition of connecting environmental issues with business education is short in Finland as well. Teaching environmental issues in the context of business studies has not aroused any wider interest. "Business schools train the future decision makers who can, with their own attitudes and practical actions, influence the contribution of business to the process of ecologically sustainable development. However, several studies show that no systematic thinking has been undertaken within business education as to what the educational prerequisites of the process of ecologically sustainable development are." (Rohweder 2004, 175-181)

The skill profile of BBA, discussed in chapter 2.3.2. earlier, does not commit itself on environmental issues. Globalisation expands the business environment and brings along tightening competition, where environmental issues are crucial competitive factors. Therefore they should be included in all degree programmes. The skill profile of an expert should thus cover the ability to apply the principles of sustainable development and to take ethical responsibility for professional activities (Laurila 2003). Also Turkulainen (1999) emphasises similar qualifications in his article about the working life need for multiprofessional workers. According to him, companies expect the graduates from the universities of applied sciences to have environmental knowledge, understanding about environmental impacts and interest for environmental planning. (Turkulainen 1999, 33) Mutanen (2004) interfaces ethical aspect with professional expertise in the education of universities of applied sciences. According to him, besides striving for the given goals, a professional expert

can also evaluate and choose these goals. This independent decision-making and evaluation of choices make the work of a professional expert ethically sensitive. Thus, a professional expert is always responsible for setting down the values and realising them. (Mutanen, 2004, 242-254) The ethical aspect is nor separable from professional expertise. The minimum requirement set for education at the universities of applied sciences is to provide professional skills, but professional expertise must include also internalisation of professional ethics (Siitonen, 2004, 277).

Finland has committed nationally, in European Union, in United Nations, and in cooperation with Baltic and Nordic countries to contribute to sustainable development. Related to this it is stated in the Development Plan for Education and Research 2003-2008 that sustainable development is facilitated by education and research. Ministry of Education in Finland published in February 2006 a strategy of education for sustainable development. According to its objectives, the principles of sustainable development should be visible and integrated during the next three years at all educational levels in everyday work, in curricula, and in research and development work. The strategy is based on the Decade of Education for Sustainable Development of United Nations as well as on the Finnish Baltic 21E action plan, which is the first supranational project in order to contribute to education for sustainable development. The decade of United Nations 2005-2014 aims to move current education in the direction of sustainable development, increase the awareness among population on sustainable development and offer education for sustainable development on all fields of society. (Ministry of Education, 2006c) Thus, the commitment to sustainability and environmental responsibility play a central role in the Finnish educational policy.

These definitions and commitments of policy have generated several practical plans and projects in order to promote sustainable development. One example is the establishment of the University of Applied Sciences Network for Sustainable Development in 2004, aiming to encourage the universities of applied sciences to develop and implement an environmental management system according to ISO 14001/ EMAS standard (Ministry of Education 2006d). New criteria for sustainable development for all educational institutions in Finland, including vocational education, were published in early 2009. These criteria cover sustainable development in management, teaching and policies and are used as development and evaluation tools, also providing an opportunity for certification (SYKLI 2009). The Baltic E21 plan, supported by Ministry of Education, has by the year 2008 produced also indicators for sustainable development targeted especially for the universities of applied sciences (Virtanen et al, 2008). These are meant for the evaluation and

development of actions from the viewpoint of sustainable development. The indicators are listed in the table 5. These indicators are also defined and specified on the competence level, describing how knowledge of sustainable development should be considered on the individual, community and society level.

Table 5: Indicators for sustainable development in universities of applied sciences (Virtanen et al, 2008)

1. The strategies of sustainable development targeted for educational sector form the basis for university operations
2. Sustainable development is the objective in the values and strategies of the university
3. The university has a specified strategy, action plan and defined responsibilities in order to promote sustainable development
4. Sustainable development has been integrated with the curricula
5. Pedagogical solutions support the education promoting sustainable development
6. The education provides knowledge promoting sustainable development
7. It is assured that university teachers have knowledge of sustainable development
8. The university encourages R&D promoting sustainable development both regionally and internationally
9. R&D projects are evaluated from the viewpoint of sustainable development and proactive projects focusing on all dimensions of sustainable development are supported.
10. The objectives of openness, interaction and communality are executed in R&D projects.

Regardless all plans and actions, there is still much to do and neither have the impacts of taken actions on the field of curriculum development at university of applied sciences, business degrees been systematically studied in Finland earlier.

3.6. EMPIRICAL RESEARCH DESIGN AND RESEARCH QUESTIONS

The conceptual framework for the research has been formed. It defined the key concepts of environmental issues and environmental knowledge and presented how environmental issues can be approached on a strategic level in order to contribute better environmental knowledge. It discussed the educational system at the Finnish universities of applied sciences, focusing on business education at the universities of applied sciences. Special emphasis lied on discussion on competencies and qualifications provided by business education at the universities of applied sciences, both generally and

concerning environmental knowledge and on the crucial role of curriculum in business education.

Next the findings of the curriculum analyses will be examined. The first research question guiding this research, exploring the role of environmental issues in business education at the Finnish universities of applied sciences, focuses on the empirical interpretation of extensive data material. This question is approached first by examining if and what environmental issues there are in business curricula. The extent of these studies is measured in order to be able to evaluate their significance. It is studied what their position is in curricula, i.e. whether the issues are included in other subjects or if they are studied as separate topics, and second, whether they are compulsory or voluntary studies. In addition, the driving forces of environmental issues in business education are explored.

There is prior knowledge of growth of environmental awareness and on that there are needs and expectations in Finnish organisations concerning environmental knowledge of business graduates, and curriculum analyses aim to study whether business curricula have reacted on this need. Therefore the secondary research question was whether business education curricula in the Finnish universities of applied sciences have responded to the increasing need for environmental knowledge and been renewed accordingly during the last three years. This second research question combines the first question to wider context by linking the environmental knowledge provided by business education with the increasing needs of environmental knowledge in companies and organisations in order to examine the readiness and ability of business curricula to react on this change. Thus, the study aims to contextualize the research phenomenon and contribute managerial outcomes and development ideas for business education in the universities of applied sciences. As the research contribution, the study aims to draw conclusions from the current situation of environmental studies in business education in the Finnish universities of applied sciences and evaluate if the business curricula have reacted on and renewed accordingly with the increasing needs of environmental knowledge in business life. The contribution of this research is not only to discuss the current situation of environmental issues in business education but also to provide ideas how business education at the Finnish universities of applied sciences could be developed and kept updated with the changing business environment.

4 Findings and conclusions

4.1 FINDINGS BASED ON SURVEYS

The first survey was conducted as an electronic survey in the autumn of 2006 and the second in the autumn of 2010. The target group in both was all degree programmes in the study field of social sciences, business and administration leading to a BBA (bachelor of business administration) degree. In the autumn of 2006 the population was 103 degree programmes according to AMKOTA statistics (Ministry of Education, 2006b). However, all these degree programmes were not started and the valid population was 101. In 2010, the valid population was 99 degree programmes (Ministry of Education 2010).

The research purpose was to focus on BBA degrees (tradenomi-tutkinto) at the Finnish universities of applied sciences, and therefore the preliminary idea was study all degree programmes in the study field of social sciences, business and administration. However, the degree programme of library and information services belonging to the study field of arts and media was included too, because it also leads to BBA degree. This degree programme was transferred from the study field of social sciences, business and administration to the study field of arts and media for some years ago but the degree name is still a BBA. Also degree programmes in business information technology, belonging to the study field of natural sciences, were included in the survey, because they contain a remarkable amount of business studies too and lead to BBA degree.

All BBA degree programmes starting in the autumn of 2006 and in the autumn of 2010 were picked up from AMKOTA statistics. These degree programmes were searched from the respective university's web pages and the e-mail addresses of the persons responsible for each BBA degree programme curriculum were collected. The final database in 2006 included 122 e-mail addresses, which was due to the fact that there was more than one person responsible for the curriculum listed on several university web pages. In 2010, the database was 113 e-mail addresses. The survey questionnaire year 2006 (Appendix 3) was placed in the server and the e-mail to the respondents was sent, including a link to the questionnaire. The e-mails were sent in groups consisting of the recipients working in the same university of applied sciences. In the e-mail, or cover letter, the recipients were asked to send the e-mail forward in their own institution in case that the list of recipients does not cover

all persons in the respective institution responsible for BBA programme curricula (Appendix 3). It was also emphasized in order to improve the response activity that the aim of the survey is to cover all degree programmes leading to BBA degree. Because multiple contacts with respondents appear to increase the response rate in e-mail surveys, a reminder of questioning was sent both two and three weeks after the first questioning. In 2010, Webropol software was used for the survey purpose.

In 2006, altogether 42 valid responses were received, the response rate being 40.8% of the whole population of degree programmes (103). In this survey, a respondent could answer only once concerning one degree programme. The response rate here can be considered satisfactory but not good. The rate is good for an electronic survey, but when the sample was strictly focused, a higher rate was expected. The main reason for the too low response rate is probably disinterest towards the topic, which can result from that there are no environmental issues in curricula in non-responding degree programmes. However, the response rate covered the number of universities of applied sciences well. 25 universities of applied sciences offered BBA degrees starting in the autumn of 2006 and all these were in the recipient list of the questioning. The responses were received from 23 universities of applied sciences. Thus, the response rate was 92% of the whole the population of the universities of applied sciences. The typical position of the respondents was either degree manager (13) or director of education (10), other respondents being principal lecturers (7), lecturers (7) or other (5). In 2010, the response rate measured of the population of universities of applied sciences was 69.6% (16 of 23 universities of applied sciences). Concerning degree programmes, 28 valid responses were received, covering 38 degree programmes, and the response rate being thus 38.4% (38 of 99 degree programmes). In this survey, the respondent could choose several degree programmes, because often the same person is responsible for several degree programmes leading to the same degree. The typical position of the respondents was either degree manager (8) or director of education (5), principal lecturer (7), lecturer (4) or other (4).

The national annual intake in the year 2006 in degree programmes leading to BBA degree was 6352 (Ministry of Education 2006a). The responding degree programmes had an intake of 2972 in the year 2006, and thus the respondents represent 47% of total annual intake in Finland in 2006. The representativeness of responding degree programmes can be considered good as well. There was 14 degree programmes belonging to the population starting in the autumn of 2006, and 8 of them participated in the survey. The most remarkable of degree programmes in the survey was Degree Programme in Business and Administration (Liiketalouden koulutusohjelma), representing 25 of 42 responses. The ratio corresponds to the real position of this degree programme

in the study field where it has a share of approx. 70% of total annual intake (Ministry of Education 2006a). In 2010, the national intake in degree programmes leading to BBA degrees in Finland was 5170 (AMKYH register 2011). The responding universities of applied sciences had a BBA degree intake of 4223 in 2010, and the respondents represent therefore 81.7% of the total annual intake. However, all responses did not cover all BBA degrees programmes of the university. The responding degree programmes had the intake of 2028 student's altogether and thus the response rate of the whole national intake was 39.2%. Again, Degree Programme in Business and Administration taught in Finnish represented the majority of the responses (15 of 38), but this time the responses covered relatively more other degree programmes than in 2006.

Problems 1.–2. Existence of environmental issues in curriculum; generic labels on study units with environmental contents

The questionnaire aimed to study whether there are study units on environmental issues in curricula. In this context, the general labels of study units were explored. The respondents were first asked to list the names of the study units on environmental issues in their degree programme, if there are any. This was an open question in order to collect the typical labels of study units. Next, the recognition and perception of study units were facilitated by offering a list of the typical labels of study units with environmental contents, and the respondents were asked to choose all those labels which closely resemble the labels of the study units with environmental contents included in degree programme curriculum. The responses are presented in the table 6. In the analysis, the open question responses were grouped according to the list of labels, and the number of mentions was given in the column 'frequency/ open question'. The responses of the labels of study units not corresponding with the labels given in the list are presented under the title 'other'. In the column 'frequency/ list of labels' there is a number of mentions concerning the list of labels given. The position of studies was not asked in these two questions; i.e. whether the study units with environmental contents are parts of other study units or modules, or whether these study units are compulsory or elective in curriculum. The aim was only to study here on the general level whether there are any study units with environmental contents offered in the curriculum and which the generic labels for these study units are.

Table 6: Amount and label of study units on environmental issues

LABEL	**FREQUENCY/ OPEN QUESTION**		**FREQUENCY/ LIST OF LABELS**	
Year	2006	2010	2006	2010
Company and environment; environmental issues in business	7	7	8	6
Environmental management	5	1	6	4
Environmental communication	-	-	2	2
Environmental accounting	3	1	8	1
Environmental legislation	1	1	4	4
Environmental technology	1	-	-	1
Logistics and environment	6	3	9	7
Environmental marketing	5	1	5	2
Sustainable development	3	4	10	9
Corporate Social Responsibility	7	7	11	10
Company and sustainable society	1	2	6	9
Ethics	1	-	8	5
Other:				
Quality and development	2	-	1	-
Sustainable purchasing	1	-	-	-
Energy-efficient planning	-	1	-	-
TOTAL	43	28	78	60

In the open question the respondents listed generic labels for study units on environmental issues in their curriculum. The number of mentions is relatively low; there is some study units on environmental issues offered but their number is not especially remarkable. The labels of study units vary a lot according to the programme, and therefore also the emphasis varies much; environmental issues studied in the degree programme have different labels and also different contents.

The number of mentions increased when answering was facilitated with the list of labels. The curricula have study units with environmental issues but their number remains still quite low. The generic labels vary a lot in different degree programmes. There does not seem to be any generic label which would be common in curricula of most business degrees. The list of generic labels given can be assumed to be valid because there are not many other labels given in the open question. The new generic label which could be added to the list is 'quality', because environmental issues seem to be studied often in the context of quality issues.

The most common generic labels for environmental studies are Corporate Social Responsibility and Sustainable Development, and Logistics and Environment. Environmental studies are often titled also as 'Environmental issues in businesses, 'Company and environment', 'Company and sustainable society' etc. In addition common titles are 'environmental management', 'environmental accounting' and 'environmental marketing' or 'ethics'. Environmental studies in the context of communication, legislation or technology do not seem to be typical in business studies.

No remarkable changes have taken place during four years. The number of environmental studies is more reducing than increasing according to these figures.

Problem 3. Position of environmental issues in curriculum

With the position of environmental issues in curriculum it is first referred to that whether environmental issues are studied as separate, independent subjects or whether they are included in other study subjects. In the later alternative, the label of the study unit does not refer directly to environmental issues. Second, the concept 'position' in this study refers also to that whether the study unit is compulsory or elective in the degree programme.

Environmental issues can be included in study units with labels which do not refer to environmental issues. It has been discussed much that to make a difference in the future of business, environmental education should be in the form neither of a separate module nor a study unit but embedded in the core of business education (e.g. Matten and Moon 2004; Rohtweder 2002). Many teachers and practioners share this view that environmental issues should be integrated into degree level studies, and this is known as 'mainstreaming'. Mainstreaming was studied here so that the respondents were asked to choose from their curriculum all those subjects where the respondents know that the subject studies include also environmental issues. The results are presented in the table 7. It is evident that environmental issues are often studied in the context of wider, societal issues such as economics and globalization, and often

in marketing and logistics studies as well. E.g. in the year 2006, environmental issues were included in marketing and economics in more 50% of responding degree programmes. The number of mentions is clearly higher than in the list of generic labels earlier, which indicates that environmental issues are more often studied in the context of other subjects than as separate independent study units with a label referring directly to environmental contents. However, the tendency seems to be reducing, the number of mentions being lower in the year 2010.

Table 7: Study units including environmental issues (under a label not referring to environmental issues)

SUBJECT	Frequency 2006	Percent 2006 (N=42)	Frequency 2010	Percent 2010 (N=38)
Marketing	23	54.8	13	34.2
Accounting	10	23.8	8	21.1
Logistics, purchasing, supply chains	19	45.2	12	31.6
Management and administration	9	21	10	26.3
Legislation	9	21	5	13.2
Communication skills	2	4.8	3	7.9
Economics, international economics, globalisation	25	59.5	7	18.4
Other	5	11.9	10	26.3
Business environment	1		1	
Quality development	1		3	
Regional studies, e.g. China	1		-	

The position of environmental issues was studied also with an alternative question where the aim was to explore if environmental issues are typically studied as separate, independent study units or as a part of other subjects. The respondents were given five alternatives and the results are presented in the table 8. The results support the earlier assumptions. Generally, environmental issues are clearly more often included in other studies than offered as independent, separate study units.

Table 8: Position of environmental studies according to given alternatives

POSITION	Frequency 2006	Percent 2006	Frequency 2010	Percent 2010
Separate, independent studies	3	7.1	1	2.6
Included in other studies/ subjects	18	42.9	11	29
Both practices; more as separate studies	7	16.7	-	-
Both practices; more included in other studies	5	11.9	-	-
Equal number of both practices	4	9.5	11	29
Neither of both practices	-	-	3	7,9
Total	37	88.1	26	68.5
Missing	5	11.9	12	31.5
Total	42	100	38	100

The position of environmental issues in studies was examined by asking about their role in compulsory and elective studies too, i.e. whether they have a significant or insignificant role in compulsory or elective studies in the degree curriculum. The respondents were asked to describe the position of environmental studies both in compulsory studies and elective studies. The results in table 9 show that environmental issues do not hold an especially significant position either in compulsory or elective studies in business curricula. However, this does not mean that environmental issues would not exist in curricula; the majority of the respondents consider environmental issues to have at least minor or some significance both in compulsory and elective studies. Again, the tendency is reducing and the position of environmental issues appears to be weakening in the curricula.

Table 9: Position of environmental issues in compulsory and elective studies

Response	Compulsory studies, Frequency (%)		Elective studies, Frequency (%)	
	Year 2006	Year 2010	Year 2006	Year 2010
insignificant/ do not exist	3 (7.1)	5 (13.2)	5 (11.9)	6 (15.8)
minor significance	17(40.5)	7 (18.4)	15(35.7)	9 (23.7)
some significance	21 (50)	14 (38.9)	17(40.5)	11 (28.9)
significant position	1(2.4)	-	3 (7.1)	-
missing	0	12 (31.6)	2 (4.8)	12 (31.6)
Total	42 (100)	38	42 (100)	38

The survey aimed to study the position of environmental issues in curricula on the general level by asking the respondents to give their opinions to different statements. The respondents were asked to describe the position of

environmental studies in their degree curriculum by choosing the statement which was closest to their opinion. The statements were following:

1. Environmental issues are visible in the curriculum as separate independent studies
2. Environmental issues are mainstreaming in the studies although they are not visible in the curriculum as separate, independent studies
3. There are no environmental issues included in degree studies

The survey results for the statements are presented in the table 10.

Table 10: Description of position of environmental studies by choosing the statement closest to a respondent's opinion

	Statement 1		**Statement 2**		**Statement 3**	
	Frequency (%) 2006	Frequency (%) 2010	Frequency (%) 2006	Frequency (%) 2010	Frequency (%) 2006	Frequency (%) 2010
Totally agree	6 (14.3)	7 (18.4)	2 (4.8)	7(18.4)	3(7.1)	4(10.5)
Partly agree	8 (19)	5 (13.2)	22(52.4)	12(31.6)	3(7.1)	3 (7.9)
Not agree or disagree	3 (7.1)	4(10.5)	5 (11.9)	5(13.15)	4(9.5)	5(13.2)
Partly disagree	11(26.2)	9 (23.7)	7 (16.7)	4(10.5)	7(16.7)	5(13.2)
Totally disagree	14 (33.39	11 (28.9)	5 (11.9)	8(21.05)	25(59.5)	20(52.6)
MISSING	0	2 (5.3)	1 (2.4)	2 (5.3)	0	1 (2.6)
TOTAL	42 (100)	38 (100)	42 (100)	38 (100)	42 (100)	38 (100)
Median2006/2010	4/4		2/2		5/5	
Mode 2006/2010	5/5		2/2		5/5	

The first statement, 'environmental issues are visible in the curriculum as separate independent studies', was disagreed, partially or totally, altogether by 59.5% of the respondents in 2006 and by 52.6% in 2010, while the second statement 'environmental issues are mainstreaming in the studies although they are not visible in the curriculum as separate, independent studies' was agreed by 57.2% in 2006 and by 50% in 2010. Thus, environmental issues do not seem to be offered as independent separate courses generally. It is more common that environmental issues are studied as a part of other studies, i.e. environmental questions are included in studies which are not offered under any generic environmental label. Environmental issues are mainstreaming in the studies at least to some extent. The changes between years are minor and the data does not refer to significant changes in curricula. The role of environmental issues in business studies does not seem to be especially

important, but this does not mean that environmental issues are totally neglected in business studies because they are offered at least to a lesser extent; in 2006, 76.2% and in 2010 65.8% of the respondents disagreed with the statement 4 'there are no environmental issues included in degree studies'. The findings are clearly observed also with the values of median and mode, the mode giving the most evident value in the material and the median being in the middle of the material.

Problem 4. Extent of environmental issues in curriculum

The study aimed to further examine significance of environmental issues in business curricula by outlining the extent of environmental studies. The extent is measured by credits (ECTS), and the respondents were asked as follows:

1. If there are compulsory environmental studies in the curriculum, what is their extent in credits?
2. If there are elective environmental studies in the curriculum, what is their extent in credits?

Alternative answers were 1-5 credits, 6-10 credits, 11-15 credits, and 16 credits or more. These numerical single-choice scale-based alternatives were used in order to outline the extent in general, not to define exactly the typical number of credits. In addition, the scales used equate to the typical extents of study unit offered in business curricula. The results are presented in the table 11.

Table 11: Extent of environmental compulsory and elective studies in curricula

	CREDITS/ compulsory studies		CREDITS/ elective studies	
	Frequency (%) 2006	Frequency (%) 2010	Frequency (%) 2006	Frequency (%) 2010
1-5 cr	20 (47.6)	22 (57.9)	21 (50)	19 (50)
6-10 cr	5 (11.9)	3 (7.9)	5 (11.9)	8 (21.1)
11-15 cr	-	1 (2.6)	4 (9.5)	-
16 cr or more	-	-	1 (2.4)	1 (2.6)
Total	25 (59.5)	26 (68.4)	31 (73.8)	28 (73.7)
Missing	17 (40.5)	12 (31.6)	11 (26.2)	10 (26.3)
TOTAL	42 (100)	38 (100)	42 (100)	38 (100)

The results indicate that business curricula do not always provide compulsory environmental studies; if they do, there is usually only one study unit offered. Many (40.5% in 2006 and 31.6% in 2010) of business programmes do not seem to offer any compulsory environmental study units at all. None of the respondents from those who offered some compulsory environmental studies had more than 10 credits of compulsory environmental studies in 2006,

and the results state that compulsory environmental studies did not have a significant role in any business programme at any Finnish university of applied sciences. In 2010, five business programmes had more 10 credits of compulsory environmental studies in their curricula. It is at least to some extent more common to offer some elective environmental studies in business curricula. Generally, the number of credits offered in electives studies in low, being typically only one study unit (1-5 credits). Only a few curricula seem to offer more environmental study units or modules and thus provide at least an opportunity for students to focus more closely on the topic.

Problem 5. Drivers for environmental issues in curriculum

The surveys invited the perceptions of the recent and future drivers of environmental issues in business education. The respondents indicated that the single most important driver of the environmental topics has been the initiatives of *individual teachers*. This result stayed unchangeable from the year 2006 compared with the year 2010. The key driving factors of environmental issues are not the management of universities, the university image and reputation, authorities, or environmental organisations, but individual members of teaching staff with a research interest or otherwise in environmental topics. The individual impact is emphasised also by the finding that the management of degree programmes was mentioned having quite a crucial role as drivers, while higher organisational management levels seem to play remarkably more distant role. Thus, nevertheless CSR or environment related strategic intentions or visions of universities, the real impact or the final decision on environmental issues in curriculum contents is made by individual initiative.

Generally, given uncertainty holds the way there when the respondents were asked about the *university attitude* towards environmental questions. The clear majority both in 2006 and 2010 had no idea whether their institution had a CSR report, a certified environmental management systems, or written guidelines or recommendation on that how environmental issues should be included in curricula. However, it was mentioned that environmental issues are somehow visible in university strategy or vision and that university commitment to environmental issues is conveyed in quality management systems at least to some extent. In all, the university attitudes towards environmental questions seem to appear only faintly even inside the institution.

Quite an important role can be assigned to *students* as well as to *businesses* as drivers, which refers both to the growing interest of the topic both to businesses and students, and to active dialogue between the universities of applied sciences and their most important stakeholders. The majority of the

respondents (87.8% in 2006, 88.5% in 2010) stated that there is a growing need for environmental knowledge in businesses and 76% in 2006 and 76.9% in 2010 considered that businesses also expect business graduates to have at least a basic knowledge in environmental issues. However, it was said that businesses have not often expressed this need to business education, which refers to that this viewpoint has been created by the respondent's own experiences or other contacts with businesses.

The results indicate that environmental issues will have a more significant role in business curricula in the future. This was mentioned arising out for several reasons having significant or quite a significant impact: *needs and expectations of companies; public opinion, environmental catastrophes and company scandals; tightening regulations and laws and university strategy*; and also because of *student demand* and *improved environmental knowledge of teaching staff*. However, the role is still minor, but the respondents shared the common concern of that the role should be more important and that it should be monitored too in order to ensure its better position. All this underlines the position of environmental issues in the new comer stage in the context of its business school status.

4.2 FINDINGS BASED ON CONTENT AND DISCOURSE ANALYSES

The analysis was conducted as a content and discourse analysis in the autumn of 2007 and 2010. The target group was again all degree programmes in the study field of social sciences, business and administration leading to a BBA (bachelor of business administration) degree. The population in the autumn of 2007 was 103 degree programmes according to AMKOTA statistics (Ministry of Education, 2007). However, all these degree programmes were not started and the valid population was 100 degree programmes. Altogether there were 28 universities of applied sciences in Finland in the autumn of 2007, and 24 of these offered BBA degrees starting in the autumn of 2007. These 24 universities of applied sciences formed the population in the analysis. In the year 2010, there were 99 degree programmes in 23 universities of applied sciences in Finland leading to BBA degree (AMKOTA statistics 2010), all these forming the population for the analysis in 2010.

The research purpose was to focus on BBA degrees (tradenomi-tutkinto) at the Finnish universities of applied sciences, and therefore the preliminary idea was study all degree programmes in the study field of social sciences, business and administration. Again, as in the surveys, the degree programmes of library

and information services (3) belonging to the study field of arts and media were included too, because they also lead to BBA degree, as well as various degree programmes (conducted either in Finnish, English or Swedish) in business information technology (26 in 2006, 23 in 2010), actually belonging to the study field of natural sciences but leading to BBA degree. The student intake in the study field of social sciences, business and administration in the autumn of 2007 was 6352, in the degree programmes of library and information services it was 66, and in the degree programmes of business information technology 1274, thus the total student intake being 7692 in the degree programmes analysed here. In 2010, the national intake in degree programmes leading to BBA degrees in Finland was 5170.

All BBA degree programmes starting in 2007 and 2010 were picked up from AMKOTA statistics (Ministry of Education 2007; AMKOTA statistics 2010). These degree programmes were searched from the respective university's web pages, and the curricula and degree programme descriptions for each BBA degree programme curriculum were collected. The citations for curricula used as examples in this chapter have no references, because in the survey it was promised not to mention the university names in order to ensure as honest answers as possible. Here as well, the citations disconnected from the context might provide a misleading assumption about the 'greenness' or its lack in that university. The final database for content and discourse analyses included the documents on

1. description of each degree programme, including the descriptions of specialization lines under these programmes,
2. the curricula of these, including study unit descriptions,
3. and the curricula of elective studies offered in the degree programmes / universities of applied sciences.

With a description of a degree programme it is referred to a written document representing the purpose, objectives and core contents of a degree programme. This description often includes also descriptions of specialization lines offered under a degree programme and these can have different educational and professional emphasis, objectives and contents. For example, the most common degree programme leading to BBA degree is the degree programme in business (25 both in 2006 and 2010) conducted in Finnish, and it is typical that there are 2-8 different specializations offered under this programme. All degree programme and specialization line descriptions were analysed in order to find out whether environmental issues are somehow expressed and having some focus in the studies. This is where content and discourse analysis methods together form an excellent tool for analysis; e.g. if the following sentence picked up from one university's degree description in 2010 was studied without its context, it would lead to a misleading conclusion,

because it has no real connections to environmental issues, the word' environment' referring to business environment is general:

> "Graduates understand interactions between international economics and business environments and anticipate future trends and cope proactively with the volatility of global business environment".

The curricula and study units were analysed too. First, the curriculum structure was investigated. These documents are usually in the format of a table or list, were all study units of the degree programme are listed. These tables were studied in order to explore whether there are courses available including environmental issues in curriculum. Here the labels of study units were analysed to see if environmental issues are visible and clearly expressed in compulsory, optional or elective study units of the degree programme. After this, the contents of each study unit were studied. This analysis had two reasons. First, it is not always self-evident that e.g. a study unit having the word 'environment' in its label really includes environmental issues, but the label can refer e.g. to business environment in general. Second, it was assumed that there is mainstreaming of environmental issues in curricula, i.e. environmental issues can be included in the study units even if they are not expressed in their labels.

In addition, elective study units were analysed. Sometimes there are elective study units offered in a degree programme, but more often elective studies are common for the whole university and described in their own document. The analysis focused on the documents of elective study units in order to find out if there are environmental issues offered among them, and they were studied from the viewpoint of a degree programme, i.e. all those elective study units, which can be chosen for degree studies, were included in the analysis.

The descriptions of degree programmes and their specializations were analysed first. *This was done especially in order to investigate the real strategic intentions of the specific university; i.e. it was assumed that whether the university had defined its environmental strategy or vision and its own commitment to environmental issues, it should be visible on curriculum level as well.* The findings revealed the weak position of environmental issues. These descriptions aim to give a realistic but also an appealing picture of the degree programme, because their purpose is to be informative but they also form a part of programme marketing efforts. The texts usually focus on describing the main contents of the programme, professional expertise which they provide, educational and pedagogical solutions used, and the future positions of students graduating from the programme. These descriptions hardly ever mention environmental

issues in any context. In 2007, the exceptions were two degree programmes, one mentioning environmental knowledge in the list of curriculum contents, another stating about opportunity to study also environmental economics. The third exception was a university stating that ethical issues are included in all their degree programmes belonging to the research population. In 2010, there were two degree programmes mentioning that sustainable development and ethical issues are mainstreaming in the studies, and one degree programme especially emphasising ethical and responsibility perspective in all their studies. In following there are some examples from general descriptions of these few degree programmes how they represent their approach:

> "Acting in a socially responsible and ethical way is natural for graduates' working."
>
> "Graduates' identity leans on four professional roles: a value creator to the organization they work for, a global networker, project team member and manager and sustainable developer with the specified competences."
>
> "Ethical competence also means the ability to apply the principles of sustainable development in one's own work."

In all, environmental issues are conspicuous by their absence in degree programme descriptions, which refers to the fact that they are not considered a part of core competence in the degree. Neither any strategic intention to mainstreaming of these issues can be observed in programme descriptions. Environmental issues do not seem to have any image/ promotional value either in expositions of degrees.

A typical description of a curriculum in a table format is presented in Appendix 4. Here the labels of study units were studied first to investigate whether there are any environmental issues which are clearly visible and expressed precisely in the list. Here it is often given the position of study units too, belonging to compulsory or elective studies. In this example, there is at the first sight only one study unit including environmental issues, called 'corporate social responsibility'. After this, the description of this study unit was studied in detail to ensure the existence of environmental contents.

The variety in the conceptualization of environmental education is illustrated by the fact that 10 different labels of 14 alternatives were reported in 2007 and 2010. The alternatives/ labels were the same used in the surveys (table 12) and in 2007 two additional, which come up in the analysis (responsible business and environmental economics). In 2010, one additional

topic, environmental protection, came up. Table 14 presents the generic titles which were reported. The most common label in 2007 was 'ethics' (14% of all degree programmes) and the second 'corporate social responsibility' (7%), which illustrates the embeddings of environmental issues in the wider corporate and social governance themes. The deeper literal analysis of these study units showed that there usually are at least some environmental issues studied under these labels in addition to other ethical or social issues. The role of CSR related study units in 2006 can be assumed to be bigger than 7% in reality, because other related courses such as responsible business (3%) and sustainable development (3%) have very similar contents. There were no remarkable changes in 2010, the most common labels being corporate social responsibility (13%), ethics (11%), and sustainable development (8%).

Table 12: Generic labels of study units with environmental issues

LABEL	**PERCENTAGE**	
Year	**2006**	**2010**
Company and environment; environmental issues in business	7	8
Environmental management	4	4
Environmental communication	-	1
Environmental accounting	1	-
Environmental legislation	2	2
Environmental technology	1	1
Logistics and environment	6	4
Environmental marketing	1	-
Sustainable development	3	8
Corporate Social Responsibility	7	13
Company and sustainable society	-	-
Ethics	14	11
Other:		
Quality and development	-	1
Sustainable purchasing	-	-
Energy-efficient planning	-	-
Responsible business	4	2
Environmental economics	1	2
Environmental protection		1

The results indicating the division of study units in compulsory and elective are equal to the results based on the surveys; study units are divided quite equally in elective and compulsory studies if there even are any study units on environmental issues offered. If compulsory environmental studies are offered, there is usually only one study unit available. However, based on

the discourse and content analysis, there are not remarkably more offerings among elective study units either even these are available in the whole university. In all, the number of study units offered is very low in both compulsory and elective studies. Naturally, bigger universities of applied sciences having several BBA programmes are able to offer relatively more elective environmental studies. The following study unit description belongs to the elective studies of one university of applied sciences and is targeted for all students, not requiring previous studies about the topic: Contents of study unit 'Minimizing environmental effects in personal transportation and living'

- What is the Greenhouse Effect?
- Different types of human generated emissions released into the air
- Environmental effects of different forms of personal transportation
- The driver's possibility to minimize fuel consumption and CO2 emissions
- How to select an environmentally friendly vehicle
- The potential of biofuels in minimizing the Greenhouse Effect
- Is the hybrid, fuel cell or electric vehicle the Ultimate Solution?
- Factors affecting energy use in homes
- Comparison of energy usage for personal transportation and living

The findings concerning mainstreaming of environmental issues in curricula contrast clearly with the finding in the survey, where environmental issues were found to be included in other studies quite often. In the content and discourse analyses here conducted both in 2007 and 2010; there were only some occasional mentions of environmental issues in the descriptions of study units. In 2007, only 17 mentions were found in the whole material, excluding the study units having some of the earlier mentioned generic labels. There were nine study units in logistics/ purchasing/ supply chains mentioning some environmental issues in study unit description, four in management and administration, two in quality development and one in business environment and economics. In 2010, 11 mentions were found, six study units in logistics / purchasing / supply chains mentioning some environmental issues in study unit description, two in management and administration, two in quality development and two in marketing. Some examples of how environmental, or sustainability, issues are mainstreaming in study unit contents are for example following:

Example 1. Course contents: Principles of International Supply Chain Management

- International purchasing process
- Structure of international logistics markets
- Global intermediaries in the global supply chain
- Role and risks of outsourcing
- *Ethical approach in supply chain operations*

The study unit appears to underline how the topic is to be approached from a sustainable and ethically grounded perspective.

Example 2. Course contents: People as a Resource

- Human resource as a core strategic asset (SA)
- Human resource management process and strategic partnership
- Contractual options and HR planning, flexibility, diversity and equality
- Role and risks of outsourcing parts of HR management processes
- *CSR and ethical issues in HR management*

Here the themes of responsibility and ethics are clearly connected to the questions of human resources management.

Example 3. Course content: Global Sourcing Strategies
At the end of the course, the student is expected to be able to

- recognize the risks and requirements of supply management in a global context
- use methods of global purchasing and sourcing
- identify the legal aspects of global purchasing
- comprehend the importance of supplier relationship management as a key business process
- *practice sustainable sourcing only*

This competence-based (describing competences provided by the completion of the studies) study unit description emphasizes how the learning outcome of sustainability is transferred and adapted also into practical actions.

Overall it appears that even the respondents in the surveys stated that environmental issues mainstream often, this is not made visible in curricula. The teaching staff obviously includes environmental issues in their course contents but this does not seem to be a systematic or target-oriented decision about the institution because environmental issues are not clearly written out in curricula.

4.3 FINDINGS BASED ON CASE STUDIES

The research object of the case study is Turku University of Applied Sciences and its degree programmes leading BBA degree in the study field of social sciences, business and administration. In 2007, this included three degree programmes in business, international business and business logistics, having

10 different specialisations and curricula. There were also some other degree programmes leading to BBA degree in TUAS, one in natural sciences and one in arts and media, but these are left out from the case analysis. The degree programmes included, their specialisations, campuses and student numbers are listed in Appendix 5. Altogether, the analysed degree programmes leading to BBA degree in TUAS had an annual intake of 234 students following 10 different BBA curricula in the autumn of 2007 when the case study was conducted. In 2010, there were four degree programmes in business, international business, professional sales and business logistics, having 13 different specialisations and curricula, and the intake of 290 students to these. The BBA degrees in TUAS under the study fields of natural sciences and arts and media were again excluded. The data collection methods in both case studies were interviews and discourse analyses. In the discourse analyses, the curricula of the degree programmes and their specialisations were analysed according to the principles presented earlier in the context of a discourse analysis.

The interview guide for the semi structured interviews is presented in Appendix 6. The purpose of the interview questions was to learn how the research questions were understood and connected to each other and if and how the environment was involved in the curricula. All the interviews were private and conducted between the interviewer and person(s) responsible for the specific curriculum. Usually, this was the degree programme manager. The interviewees were first informed generally about the study and its purpose. During the interview, the interview guide was not slavishly followed but the person interviewed could freely talk about the issues involved. The interview guide was used to ensure that all the planned issues were covered. The interviewees were asked to provide more details and to give examples. The purpose was to let the interviewees express those definitions and explanations which help to understand the phenomenon among the surrounding culture.

The data collection process was carried out by taking notes. Because only one interview was carried out per day, it was possible to assemble the information collected comprehensively and systematically immediately after the interviews. All raw materials to be included in the case were assembled first, including the interview notes and all printed material received during them, such as curriculum schedules. A logical pattern of topics was decided in order to present the material. This pattern was based on the themes presented in the interview guide. Once the pattern was set and major sections decided, the material was reviewed and written down in an appropriate section. Notes were made for missing information to be able to supplement the material later.

The first question in the interview was 'Are there environmental issues in curriculum?' In 2007, in eight of ten specializations it was mentioned the studies to include some environmental issues. Only two specializations had compulsory environmental studies in their curricula, 'logistics and environment' extent 5 credits, and 'environmental issues in business' extent 5 credits. Seven specializations offered optional environmental studies under labels 'corporate social responsibility' extent 5 credits in four specializations, and 'environment and social responsibility' extent 10 credits in three specializations. Only one of the ten specializations offered both compulsory and optional environmental studies, providing opportunities for altogether 15 credits in environmental studies. Additionally, in 2007 the university offered some elective virtual study units in environmental studies available for all university students, under labels 'business ethics' extent 3 credits, 'corporate social responsibility' extent 3 credits, and 'environmental economics' extent 3 credits. The students could place these studies in their elective studies, the extent of which depends on the degree programme, being usually about 15 credits. In 2010, nine specialisations out of 13 mentioned including at least some environmental issues in their curricula. Four specialisations had compulsory environmental studies, focusing on ethics and responsible business and having the extent of five credits each. The majority of specialisations did not offer environmental issues in their optional or elective studies either. The exception was the Faculty of Technology, Environment and Business, where in optional studies there were 5 different study units focusing on environmental issues offered, having the extent of 3-5 credits each. In other faculties including 11 specialisations, there were altogether only two elective study units in environmental topics offered in two specialisations.

The interviewees were asked about mainstreaming, i.e. if environmental issues were integrated in other subject studies in the degree programme. Both in 2007 and 2010 it was stated that this certainly is common, but there is not any systematic decision or study on this. Environmental issues were said to be discussed e.g. in the studies of marketing and economics, but the discourse analyses showed that they were not described literally in curricula. In both years, the mainstreaming was visible and mentioned only in the study unit descriptions focusing on logistics or supply chains. Teaching methods in environmental issues do not generally vary from other teaching methods, but virtual study methods are deployed much in TUAS. This is partly a result of TUAS development projects focused on teaching (OP-Innot projects), where one project generated eight virtual study units in environmental issues in 2006. Several of these virtual study units were offered in English, which improved study opportunities also for exchange students, foreign degree students, and students doing a part of their studies abroad. This was the situation in 2007,

but in 2010 it was left only two of these virtual study units in environmental issues.

The interview questions also concerned the perceptions of the recent and future drivers of environmental issues in business education. The findings were equal with the survey findings earlier and very similar both in the interviews conducted in 2007 and 2010, indicating that individual teachers are the major and often the single driving factor of environmental topics in curricula. The individual impact seems to have brought the topic to the current curricula, and the discussion on the future status of the topic continues between the individuals. It was mentioned that almost in every degree programme a single or a few individuals continuously emphasise the growing significance of environmental issues in business but this has had only a vague impact on curricula. There are increasingly higher expectations on the qualifications and know-how of business graduates and other issues than environmental knowledge have been usually considered more important for BBA expertise. The requirement of more significant status of environmental issues in curricula set by individual teachers is based on their perceptions on business needs now and in the future. However, it was stated in the interviews that the businesses themselves, e.g. in different forums of co-operation and relationships, have not expressed any greater interest to improve the position of environmental issues in curricula. Additionally, students have not expressed any special need in order to be able to complete more studies on environmental issues.

The perceptions of the universities themselves as drivers in environmental issues were diversified. It was mentioned that environmental issues are somehow visible in university strategy and that university commitment to environmental issues is conveyed in quality management systems at least to some extent but that does not have any connection with curricula development. On the other hand, some respondents considered that even there is no systematic approach in order to link the university strategy or values with curriculum development, the university attitude still has a certain impact on the motivation of this development, e.g. the existence of CSR report was considered as a driving factor when trying to add environmental issues in curricula contents. TUAS is the only university of applied sciences in Finland which already for several years has published an annual CSR report.

It was concluded generally that environmental knowledge is important for BBA competence and that environmental issues should be included in curriculum contents. However, the current situation was assumed to be satisfactory and there were not any specific plans in any of 10 specialisations in

2007 or in any of 13 in the year 2010 to add environmental issues in curricula in the near future.

4.4 ROLE OF ENVIRONMENTAL ISSUES IN BUSINESS EDUCATION AT FINNISH UNIVERSITIES OF APPLIED SCIENCES

The major research question, which has been guiding this study, was: *What is the role of environmental issues in business education at the Finnish universities of applied sciences?* The research question was divided into several sub questions in order to be able to examine the topic more closely. First, the concept of environmental issues and environmental knowledge were defined especially in the context of business education and business expectations. Second, the educational system and purpose of the universities of applied sciences in Finland and their curriculum development were discussed, putting a special emphasis on business education. The empirical studies, surveys, content and discourse analyses as well as case studies, were conducted in order to explore the role of environmental issues in the curricula of business education in the Finnish universities of applied sciences. These similar studies were conducted both in 2006-2007 and 2010 to be able to observe eventual changes in role of environmental issues in business curricula.

The overall answer to the major research question is the *relatively weak position of environmental issues in business education at the Finnish universities of applied sciences*. Environmental issues are studied in business programmes usually to some extent but their number remains low. The generic labels for study units focusing on environmental issues also vary much in different degree programmes. Thus, there is not any generic environmental issue(s) or related labels being usually covered in business studies at the Finnish universities of applied sciences. The most common context of environmental studies was logistics or ethics / sustainable development / corporate social responsibility, which illustrates the embeddedness of environmental topics at wider corporate level or social governance themes, or their mainstreaming in the context of other business studies.

The findings based on the survey show that environmental issues are often included in other subject studies. This is a more common approach than to offer separate independent study units with a label referring directly to environmental contents. Environmental issues are therefore mainstreaming in the studies to some extent but their role remains insignificant in most degree programmes. However, the findings of the discourse analysis revealed that

mainstreaming is not any strategic or systematic approach to cover environmental questions; neither is it evident whether mainstreaming is true to even that extent what the survey gave evidence about. The survey results showed the existence of mainstreaming to some extent, but the discourse analysis could not confirm this because environmental issues were not usually mentioned in study unit descriptions of other subjects either. The lecturers may include environmental issues in the implementation of their study unit contents, but because this is not made visible in study unit description in the curriculum, the outcome cannot be assured to cover environmental issues.

The extent of environmental studies and their position in compulsory or elective studies were examined in one of the sub questions. Study units were found to be divided quite equally in elective and compulsory studies. If compulsory environmental studies are offered, there is usually only one study unit available. However, there are not remarkably more offerings among elective study units either even these are available in the whole university. In all, the number of study units offered is very low in both compulsory and elective studies, being commonly only 1-5 credits in the curriculum of a typical business degree programme.

The teaching methods of environmental studies were not studied by purpose, but the responses showed that virtual study methods are deployed quite much especially in environmental studies, as stated both in the survey and in the case findings. The pedagogical framework of virtual studies can provide added value which should be considered if the role of environmental issues is aimed to be strengthened in the studies of the universities of applied sciences. Virtual studies can provide flexibility and better accessibility, making studying more independent on physical, time-bound or place-bound elements of educational situations. Students can progress at their own pace, bypass the issues learnt earlier, and focus on essential new contents. According to constructivism, with virtual solutions earlier knowledge of students can be exploited and used as a basis for new knowledge. Thus, the opportunities for virtual studies, focusing on a motivating study method, flexibility and good accessibility, can generate more interest on environmental studies too if these are completed with virtual methods.

The survey as well as the case study both investigated drivers for teaching environmental issues in business education. The single most important driver of environmental topics has been the initiatives of individual teachers and lecturers, not the management of universities, university image and reputation, authorities or environmental organisations, students, or business organisations. The individual impact is emphasised also by the finding that the management of degree programmes was mentioned having a remarkable role as drivers,

while higher organisational management levels seem to play a more distant role. Therefore, nevertheless the environment related strategic intentions of universities, the real impact or the final decision on environmental issues in curriculum contents is made by individual initiative, leading to the conclusion that the topic is not incorporated in business education on all strategic levels of universities. The content and discourse analyses also concluded that there is usually not any strategic intention to emphasise environmental issues in descriptions of business degrees and their curriculum contents. The case study findings stated that university strategy and its commitment to environmental issues hold a weak position as a motivating factor in curriculum development, the individual impact being the real and significant driver. These findings lead to the conclusion that the topic of environmental issues is not 'institutionalised' being an axiomatic element in business curricula.

Students as a driving force do not seem to play a significant role currently. However, the student impact can be crucial in the future if students show more interest in improving their environmental knowledge. Growing student activity together with increasing environmental awareness among all stakeholder groups can encourage business education providers to emphasise environmental issues more in education planning and implementation even in the near future. Businesses as drivers were considered having more impact according to empirical evidence. They were seen as having a clear need for environmental knowledge but this need was not clearly communicated to business education providers by businesses themselves; the need was estimated to exist on the basis of the education providers' own contacts and experiences, as well as concluded from research results and reports. In all, it is evident that businesses will be a more significant driving force soon because of the pressure of stakeholder groups and because of all benefits provided of good environmental performance on competitiveness discussed earlier.

The outcome of the empirical studies states that the position and role of environmental issues in business education is fragmented, not uniform at all. It is possible to graduate from a business programme without any environmental studies and therefore there is not any standardised minimum level of environmental knowledge among business graduates. On the other side, most universities of applied sciences offer opportunities for extensive elective environmental studies which can lead to high levels of environmental knowledge among some business graduates.

The second research question of this study was whether *business education curricula at the Finnish universities of applied sciences have responded to the increasing need for environmental knowledge and been renewed accordingly during the last three years?* The research question aims to support the first research

question by focusing on its contextuality and readiness for change, and contributing both managerial outcome and development ideas for business education, combining the first question to wider context by linking the environmental knowledge provided by business education with the increasing needs of environmental knowledge in companies and organisations in order to examine the readiness and ability of business curricula to react on this change.

Referring to earlier research results it was stated that environmental issues continue to form more and more crucial competitive factor for both SMEs and big companies. Because of the globalisation of trade, this trend is also global, having naturally somehow different emphasis depending on the market, e.g. developed economies focusing more on the significance of environmental issues. This does not mean all developing economies finding environmental questions as a less appealing competitive factor, because environmental challenges have grown in importance in many of these markets, such as in China. In all, environmental issues are seen as a business opportunity, which need to be linked to company goals and values, and therefore a strategic approach in environmental questions is claimed. The issues need to be a truly mainstream, not specialists function, because only a holistic approach provides successful implementation. Also Finnish companies are looking towards environmental questions in order to improve their competitiveness. The huge impact of SMEs in Finnish economy underlines their views, which consider environmental issues to be already now an essential factor in all decision making and growing in significance in the near future.

In addition to these findings, the views of Finnish companies employing especially business graduates were found worth exploring and a survey was conducted in order to find empirical support for these earlier research results. The companies involved considered environmental issues being connected with their everyday functions and they faced environmental questions in contacts with their stakeholders. The survey confirmed the assumption that there are needs and expectations in companies concerning environmental knowledge of business graduates. In addition, the majority of studied companies regardless their business field expected business graduates to have at least basic knowledge of environmental issues. Needs of knowledge vary according to the work task and also in compliance with the business field, environmental questions being today more important in industrial companies.

Evidently environmental knowledge of business graduates does not meet business needs as well as expected in companies in many cases. As stated earlier, there is not any standardised minimum level of environmental studies included in business education in the universities of applied sciences, and therefore it is possible to graduate without any basic knowledge about

environmental issues. Environmental issues are not (yet) seen as a part of core competence of business graduates. According to the empirical findings, business education curricula in the Finnish universities of applied sciences have not been renewed accordingly during the last three years. Is it probable that changes could take place and how can they be generated?

4.5 BUSINESS EDUCATION AND ENVIRONMENTAL ISSUES – A STRATEGIC APPROACH

Referring to earlier discussion on the emergence of environmental issues in business education on national, European and international level, as well as the commitment to sustainable development in the Finnish educational policy, it is evident that reconsideration of business curriculum contents and implementation is claimed. In order to make a contribution some changes in curricula alone, e.g. the higher extent of credits in environmental issues, are not adequate to make influential changes. The development needs to take place on several levels, starting from the university's strategic intention in environmental questions and to be implemented in all main tasks of a university of applied sciences. How to combine business education and environmental issues with an organisation's strategic intention to a continuum in order to have real impressiveness on the development of environmental knowledge among stakeholders, especially among students? This objective can be approached from a strategic viewpoint and be started from recognition of the stakeholders of the universities of applied sciences. Also the universities of applied sciences, not only companies, need to have good understanding about their stakeholders and the expectations that they have in environmental questions. Perceptions of both recent and current drivers of environmental issues in education are to be invited in order to develop university of applied sciences activities and teaching in the desired direction. Dowling's (2001) model of corporate stakeholders can be adapted to the universities of applied sciences as well. Here the stakeholders of a university of applied sciences are divided into four groups, which all have some interest in environmental issues.

Normative stakeholders form the authority for a university of applied sciences to function and monitor performance. The government's main impact on a university of applied sciences' environmental activities is expressed through the development of legislation and performance. Especially Ministry of Education is a key actor among normative stakeholders, having a crucial impact on the development of the university of applied sciences through educational policy, different obligations and guidelines, such as development plans, TATU negotiations (tavoite and tulos = objective and result), the

definitions of policies. Also local and regional authorities can have a significant role, especially as owners of the universities of applied sciences. The operational model of the universities of applied sciences can also be a limited company while the board of directors can set expectations and obligations for the organization.

Employees, especially teachers and lecturers, as *functional stakeholders* are in a key position, because they can decide quite freely how a study unit content is directed, which issues are emphasised and which are not, and thus they have an important role in that how environmental issues are brought to the implementation of studies. *Diffuse stakeholders* have an interest in a university of applied sciences because of its impact on others, and in the case of an educational institution these are of great importance. The media as well as special interest groups, e.g. organisations concerned with the environment, or different entrepreneurs' organizations, have a crucial interest in the behaviour and development of the universities of applied sciences. *Customers* as stakeholders are not unambiguous in the context of education. Students certainly form the main body of customers and set expectations and requirements concerning especially the content, learning methods and implementation of studies. The working life, i.e. companies and other organizations, form a more indirect but at least equally significant customer group for the universities of applied sciences. They can be seen as the final customers of a university of applied sciences, because a central aim of a university of applied sciences education is to provide professional expertise and knowledge as well as development opportunities for recent and future working life.

Also the universities of applied sciences meet the heteronomy of stakeholder salience and are not entirely autonomous actors in their environmental involvement. Their involvement results from requirements and expectations of different stakeholders, and these internal and external pressures and barriers contribute to a university of applied sciences specific multiple combinations of drivers and barriers. The outcome, high or low environmental involvement, describes the stakeholder impact on that whether a university of applied sciences has interest on the development of its environmental knowledge and performance. Connecting environmental questions with strategic planning of a university of applied sciences are results of the development process of a university of applied sciences and describe the attitudes of the organisation towards the environment. A university of applied sciences can employ similar strategies as companies and other organizations; resistant, reactive, proactive or sustainable/ value-based strategies. Integrating the tasks of the universities of applied sciences and the environmental involvement and strategy need more than good intentions or strong leadership;

an integrated and affirmative approach is needed to move the focus to an emphasis on substance. The implementation of environmental involvement and strategy has to take place to make a change, meaning that a university of applied sciences must be able to connect the key tasks of the university together with its environmental strategy and involvement. An integrated model (Figure 7) presents how a university of applied sciences' environmental strategy and its implementation are connected with and derived from the stakeholder impact on a university of applied sciences' environmental involvement.

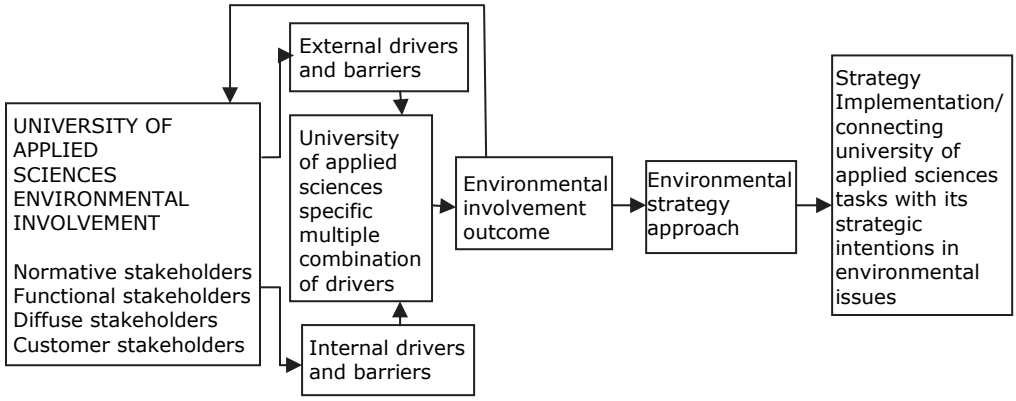

Figure 7: A university of applied sciences' environmental strategy and its implementation derived from stakeholder impact and environmental involvement

The natural environment has traditionally been taken as a given, and even though the organisation is dependent upon the natural environment, it has not been a part of strategic thinking. (Buchholz 1998, 381) However, the implementation of environmental strategy can be observed via the environmental performance of the organisation. A holistic approach in the implementation of environmental strategy means that all operations must be covered, and the natural environment must be given consideration at all stages of the strategic management process. This is also a prerequisite for reliable organisational communications in environmental questions. An organisation needs to be viewed holistically and considered as a set of systems that have interconnections to each unit and to nature. Thus, strategy implementation involves the process of putting the plan into action, which prerequisites that a university of applied sciences combines its strategic intention with its main tasks.

4.6 READINESS AND ABILITY OF BUSINESS CURRICULA TO REACT ON CHANGES

While increasing environmental crises have revealed the vulnerability of the world's ecological system, there are other drivers for change in sight. Europe is bound to the rest of the world through an enormous number of systems — environmental, economic, social, political and others — enabling a two-way flow of materials and ideas. Europe contributes to global environmental pressures and accelerating feedbacks through its dependence on fossil fuels, mining products and other imports. Conversely, changes elsewhere increasingly affect Europe; both directly as in the case of environmental change or indirectly through, for example, intensified socio-economic pressures. Global megatrends focus on the impact of global pressures on Europe. A global-to-European perspective is relevant to European environmental policy making because environmental challenges and management options in Europe are being reshaped by global drivers such as demographics, technologies, trade patterns and consumption. According to Tekes (the Finnish Funding Agency for Technology and Innovation) the six leading global megatrends of postmodern time are changes in consumption patterns, scarcity as innovation driver, the growing significance of leisure time consumption, connected environmentalism and consumerism, ability to regenerate and innovate, and technological development (Tekes 2009).

Innovations and topics how to boost them are a topic of interest in Finland as well as in the rest of Europe. The Finnish National Innovation Strategy from 2008 sets diversifying Finland's innovation policy as its goal. The aim is to enhance the competence-based competitiveness of different regions and the national economy. In the vision presented in the strategy, Finland is a renowned and internationally attractive home for research, product development and innovation-based business. Besides technology-related innovations, service innovations inspired by research and innovative conceptualization are also needed. (Kansallinen innovaatiostrategia 2008; Viljamaa 2009) A top-level environment for the development of learning must be created in Finland in order to reach the set goals. Education as well as its development must be emphasised if the goal is to attain the role of an international pioneer regarding both content-relating methods and their technological environments. It is well known that in addition to theoretical knowledge, many other skills provided by the education system are needed for innovation activities; these abilities include professional competence as well as artistic, cultural and manual skills. It is vital to utilize the existing knowledge related to the ever-changing needs for knowledge as the basis for the planning and refocusing of education. (Kansallinen innovaatiostrategia 2008) Universities of applied sciences play a crucial role here. In addition to the

functions defined in the legislation, they are thought to have a significant role in innovation activities (Kettunen 2009). According to the Finnish Polytechnics' Act, carrying out applied research and development based on the industrial structure of its region is the basic purpose of the universities of applied sciences. Higher education, which supports the professional growth of an individual and simultaneously takes into account the working life demands described in the Act, requires distinct pedagogical starting points from those more than ten years earlier when these universities were established. The world, which the new educated professionals face in the year 2011, is completely different from the one in the turn of the millennium.

It is important to recognize the pressures for change the society faces and to adapt to the new demands. According to the Finnish National Innovation Strategy, the key drivers for change are globalization, sustainable development, new technologies and the demographic changes in the population. These factors have an effect on the planning and implementation of education, as the professional competence requirements tomorrow are going to differ from those of today. This is also the case with the knowledge base, skills and attitudes of new students admitted into higher education institutions in the future. These changes in the operational environment necessitate that skills and attitudes matching with the new requirements are consciously and systematically developed alongside with the students' knowledge bases. Social and interactive skills, cultural abilities, understanding the prerequisites for working in contact with customers, preparedness for entrepreneurship, responsibility, creativity and problem-solving skills as well as tolerance to difference and uncertainty are attitudes and skills of the kind that a future professional should have. (Kairisto-Mertanen & Mertanen 2005; 2006, Kairisto-Mertanen, Hänti, Kallio-Gerlander & Rantanen 2007, Mertanen & Kairisto-Mertanen 2006.) In the Finnish business environment, which aims to become the best innovation environment in the world, innovation competencies are vital. New frameworks for learning are required in order to reach the new professional competence requirements.

Thus, postmodern time calls for changes in education and in working life. The challenge for education is how to prepare the learners to meet the demands of a rapidly changing working life and society. If the education meets the pressure, coming from 'the outside', it aims to develop and change the curriculum in order to better answer to these changing needs and expectations. As stated earlier, the curriculum needs to be designed in a way to enable students to understand the processes by which environmental issues can be integrated into a broader corporate strategy and to understand the multifaceted impact of environmental issues on overall organisational activities. The growing attention to environmental issues in society should

have led the universities of applied sciences to a re-examination of the curricula of study programmes in order to make them more relevant to the major current environmental issues.

This was the starting point for this research; whether the universities of applied sciences have been able to react to this change in their curricula in the context of environmental knowledge in business education. The study focus lies on the change; to which extent the curricula in business education in the universities of applied sciences have been renewed, and if they have followed the growth of general environmental awareness.

The empirical studies revealed the relatively weak position of environmental issues in business education in the Finnish universities of applied sciences. There was not a visible or remarkable change in curricula contents in the years 2006-2007 and 2010-2011. However, the conclusion that there has been no change in curricula is not unambiguous. The growing environmental awareness brought earlier at least some general environmental issues in business education. In the beginning, they seem to be implemented more as separate studies. Compared with the current business curricula it first seems that the role of environmental issues has remained quite the same, and at least not strengthened, but there are signs that mainstreaming has increased, i.e. environmental issues are penetrated in curricula in the context of other study contents. Therefore, environmental issues are possibly taking place as a permeable theme in business curricula, and the approach to curriculum development is moving more and more in a direction where themes and study contents are merged and integrated. 'Uneventfulness' in curricula appears to be misguiding and it is a false assumption to state that here are no changes; environmental questions have more or less been integrated and blended in curricula. This turns out for example in table 7, where the change has been quite crucial in topics related to economics and globalization. Yet in the year 2006 this integration, or blending of environmental issues in other subjects, was not yet visible, but the empirical data collection in 2010 demonstrated that topics are not more separate but have been blended.

This significant finding of this research proves that curricula have to be interpreted correctly; a superficial review indicates that some issues have disappeared in the curriculum but in real terms they still exist there, maybe even more intensively than earlier.

As said earlier about curriculum development during the last few years in the universities of applied sciences, this work has been branded by curriculum flexibility and the integration of study subjects. The trend is general in all education in Finland; the major themes are integrated into curricula as

permeable themes, such as internationalization, entrepreneurship, equality, to mention some in addition to sustainability. This is due to several reasons. These issues are considered so significant that they must be integrated as general and permeable themes; second the pressures towards curriculum contents have increased due to growing demands in the extent and depth of learning objectives. Naturally scarce resources also have impact on this development, more and more topics need to be included in curricula and therefore blending and integration of different themes in study subjects are needed. The topics are blending, and they are blended, because of the postmodern society too; several topics and questions, often competing against each other, threaten to mix numerous substances to a mosaic kaleidoscope. The freedom of educational institutions to tailor their own curricula strengthens this development in many respects. This current trend of blended, or 'hybrid curriculum' is thus not alone connected with educational decision-making but as a part of wider socio-philosophic discussion.

In all, the society and the global economy are forcing education to react, and move towards blending, or integration, of dynamic, major issues in curricula. In a way, we live in time of mergers, but it does not mean that even a more heavily built structures for curricula should be formed to cover all needed contents; quite the contrary more flexibility and more mobility are required from the future curricula. It is probable that in addition to environmental questions, it will there in the global economy rise up other new themes, which are not easily to be forecast. These themes can be concealed and hidden, but so significant that they should be taken into account in modern and updated education e.g. in business studies. Therefore the future curricula call for flexibility, ability to be rapidly modified and adapted to new circumstances, instead of fixed and strict structures. The key elements for a postmodern curriculum are flexibility and fastness, especially a sort of situational sensitivity; the features come up particularly in the second data collection phase of this research. In the same way as businesses and organisations have to make quick moves on the game board of the global economy, must the education and curricula be able to stretch to such movements, which the education is not used to do earlier, or not even been aware to be able to do.

4.7 EVALUATION OF RESEARCH PROCESS

In order to improve the quality of the research, attention is often paid to construct validity, internal validity, external validity, and reliability, which all form the criteria for judging the quality of research design. (Yin 1989, 40-46) Validity refers to the degree to which a study accurately reflects the specific

concept that the researcher is attempting to measure. In other words, while reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the success of the study at measuring what the researchers set out to measure. The conceptual basis of validity as well as reliability originates from quantitative research tradition.

The main method used in this research in order to strengthen the construct validity was utilisation of multiple sources of evidence. The use of the multiple sources of evidence, (or triangulation, see e.g. Mariampolski 2001, 59; or Rudestam and Newton, 2001, 98) refers to various ways of collection and comparison of data. Using different methods; a survey, a discourse analysis, and a case study, in order to study the same topic, confirmed some of the data as valid, but also brought up some minor inconsistencies. The main methods, the survey and the discourse analysis, were supplemented by discussions and interviews of the case study, which both confirmed and partly questioned the data collected earlier. The reasons for inconsistencies were sorted out by a profound analysis of the collected data in order to validate the information. After the analysis of the data produced by the different research methods, some new aspects were added and the conclusions drawn. In addition, construct validity was improved by pattern-matching, which was utilised so that the conceptual framework formed a pattern and the empirical results were compared with it.

Internal validity refers to the validity of a causal inference (Rudestam and Newton, 2001, 98), specifically to whether an experimental treatment/condition makes a difference or not, and whether there is sufficient evidence to support the claim. In addition to triangulation, it was improved here through the use of design features and control techniques. For example, the reactivity problem was met in the survey by expressing the same question again in different format in order to check the consistency of the answers; and systematic biases were reduced by a pilot test.

External validity refers to the generalizability of the findings of the study. Using replication logic increased it. The empirical study was repeated in as a similar way as possible in the survey and in the discourse analysis. The same issues were approached with the different research methods. The external validity was improved also by the sampling method, including the whole population. The main intervening variable in this study was the dropout rate in the electronic survey, even if it can be considered satisfactory.

The reliability depends on reproducibility (Krippendorf 1980, 131; Zikmund 1994, 288), which is whether different researchers will make similar observations. In other words, reliability refers to the ability of a measure to

produce consistent results. It is difficult to determine the precise point at which 'enough' responses have been gathered. Here, the response rate of the survey being good but still having a relevant numbers of dropouts was not causing a problem for the reproducibility of the research especially because of the other research method, the discourse analysis, studying the same issues with different methods and resulting in similar findings. The categorising methods analysing the structures and contents of curricula in the discourse analysis would lead different researchers to similar findings. Approximation of the saturation point includes when the researcher has reached redundancy after hearing the same thing repeatedly from several respondents, as recommended by Mariampolski (Mariampolski 2001, 58) as here concerning the case study. In addition, identical note-taking formats were used to be able to compare the results on a reliable way (Day 2005, Silverman 2006). Reliability of documentary sources (discourse analysis) and interviews (case study) depends on the work of categorising written data in order to analyse the text and different coders interpreting the same material should obtain the same results (Thietart et al. 2001, 205). The reliability of qualitative research depends also on the ability and honesty of the researcher in describing the entire research process (Day 2005). All these ways were chosen to improve the reliability of this research.

Naturally every research also includes more or less methodological problems. The results might be somehow differing if some other study field was investigated instead of business education. Also the point of time for curriculum analyses certainly has some impact; a longer time between the analyses could show more visibly some changes in curricula contents. Additionally, the chosen methods have revealed the presented findings, but some other methods might be able to become more absorbed in more or less hidden changes in curricula. As it was stated earlier, environmental issues are maybe taught as permeable themes, or they are blended in the contents of other study subjects, but it is not made visible, i.e. not heaven in sight in written curricula. Another study method, e.g. interviewing or questioning individual teachers might reveal the existence of environmental issues in study unit contents; showing that these issues are really included even if they are not described in study unit description. This integration, or blending, of environmental issues to other study contents is debated more in the discussion part.

The research has aimed to keep with the guidelines of the National Advisory Board on Research Ethics (2002), which has the strict requirements for good scientific practice. Scientific research has to be ethically acceptable and reliable and its findings credible and the conduct of research must conform to good scientific practice. First, this involves that the researcher

follows modes of action endorsed by the research community, that is, integrity, meticulousness and accuracy in conducting research, in recording and presenting results, and in judging research and its results. In this research, the use of multiple methods set special emphasis on these principles, and careful description of how the findings were recorded, presented and evaluated were therefore underlined. This is especially significant in this research, where all used research methods remain a matter of interpretation. The major research target here was formed by documents (written curricula), which as research material by nature are distinct and unambiguous but where the reliability and validity of findings depend on the force and logic of arguments as well as on the quality of rhetoric. In addition to the documented research material, this research used a survey and a case analysis as research methods, both having individual people as the units of data collection. Due to this, a special consideration was put on the reliability and validity of these methods.

Second, good scientific practice applies ethically sustainable data collection, research and evaluation methods conforming to scientific criteria, and practice openness intrinsic to scientific knowledge publishing their findings. Here, the process and structure of this report follow this logic. Using multiple methods according to scientific and ethical principles provided more completed data on the phenomenon of interest and a broader understanding. Openness in research process description was implemented in a way that the research was planned, conducted and reported in detail and according to the standards set for scientific knowledge. Ethically sustainable data collection, research and evaluation methods conforming to scientific criteria was strengthened also by replicating the empirical research processes twice in order to provide scientifically reliable and valid data. Also the research topic itself, environmental issues being closely connected with responsibility and ethical issues, set special demands on ethically sustainable research principles and was of personal interest of the researcher to be kept ethically acceptable. It is assumed that the researcher has genuine interest in the research topic. Gathering new knowledge about the research target is considered as a source of motivation having a research ethical basis. (Pietarinen 1999). Third, according to good research practice, a researcher takes due account of other researchers' work and achievements, respecting their work and giving due credit and weight to their achievements in carrying out their own research and publishing its results, which is carefully made visible by conducting scientific and ethical principles especially in the reference practices of the research.

5 Discussion

5.1 INTEGRATING ENVIRONMENTAL ISSUES IN BUSINESS EDUCATION

There are two different approaches how environmental issues should be taught; whether it is *education about the environment*, aiming to provide objective information about interaction between the environment and human beings, or *education for the environment*, targeting the development of a student's awareness, responsibility and willingness to contribute. (Lankoski 2006) It is clear that education must provide information, but should training of attitudes be included in higher education? Higher education should teach critical thinking, which does not match so well with the training of attitudes. On the other hand, environmental education has a role of developer in society, and this requires deep changes on the level of values and attitudes (Rohweder 2001a; Lankoski 2006). In addition, information concerning environmental issues is value bound, because environmental problems as themselves are social constructions (Haila and Levins 1992). Business education trains future actors and decision-makers, and therefore their attitudes have a significant impact (Rohweder 2001a).

Environmental issues in business education can be discussed not only from a society's viewpoint but also as a part of the whole degree. A crucial question in the development of business curricula is whether environmental issues should be studied on separate study units or be integrated with existing courses (mainstreaming) (Barnes and Ferry, 1992, 7). In reality, environmental questions are a cross-sectional part of decision-making and other functions in companies, and thus they should be integrated as a part of other study subjects, such as perspectives in the studies of financing, marketing, production etc. (Lankoski 2006) Also other studies support the integration approach (Rohweder 2004, 175).

Rohweder has developed for business educational purpose a holistic approach, which is based on the underlying principle of environmental education whereby education about (knowledge), education for (values) and the promotion of action for sustainable development should have equal weight when planning the learning process (e.g. Palmer 1998; Rohweder 2004). This

approach is also converging with the critical environmental management research, which stresses that values and attitudes need to change before a company can engage in inter-generational prosustainable business. Applying a holistic approach in education for sustainable development helps students become aware of their place in the surrounding society and environment striving to guide students in their own decision-making and to make them aware of the consequences that their decisions may have, i.e. to make them enlightened citizens. Teaching will then focus on constructive thinking, creative problem solving and constructive procedures for sustainable development instead of specific theories and methods. Figure 8 depicts the different dimensions of the holistic approach. (Rohweder 2007)

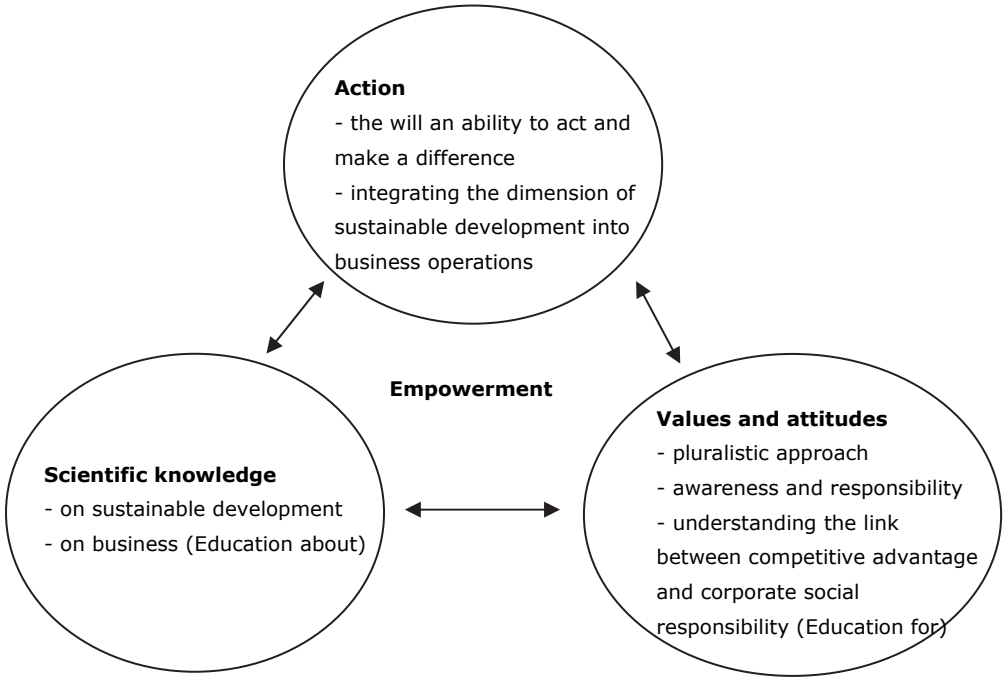

Figure 8: The holistic approach in business education for sustainable development according to Rohweder (Rohweder, 2007)

Although the holistic approach emphasises values and attitudes, it does not mean that students are pushed to adopt certain values. The holistic approach emphasises value pluralism. When values are acknowledged and made transparent, students acquire an analytical approach to information and they become conscious of their relationship to life, the environment and the role of businesses in society. Additionally it must be acknowledged that values and

information-based teaching cannot be separated from one another, because values motivate learning and vice versa. When information on environmental questions is presented in relation to a student's world view, values and background, a student will be more motivated to assimilate the information. Information on environmental issues and sustainable development increases a student's sense of responsibility and sensitivity to these issues, which are fundamental elements of responsible behaviour. (Rohweder 2007)

The major principles of the holistic approach are emphasised also by several other authors and researchers. Many EU countries, the USA, Canada and Australia have undersigned many international educational programs for improving economic, ecological and social issues. Isoaho and Pohjola (2007) state that business cultures in environmental management will develop only slowly, if these issues are not systematically included in strategic overall management, and if managers are not committed to ethical principles and values. Corporate social responsibility can be improved when the top and middle management is educated to integrate not only financial issues but also environmental and social issues in strategic overall management. (Isoaho and Pohjola 2007) Melén-Paaso (2007) writes about re-orienting education towards sustainability and states that key dimensions here involve individuals and societies in the values of equality, tolerance and respect for nature. Ethics and values thus need to take a stronger place in all education in the future. The new vision of education emphasises a holistic and interdisciplinary approach to developing knowledge and skills needed for a sustainable future, as well as the necessary change in values, behaviour and lifestyles. (Melén-Paaso 2007)

It was earlier discussed how qualification based thinking in the universities of applied sciences is encouraged both nationally and on the European level, and how this development calls for new definitions for objectives for qualifications in bachelor degrees. This will lead to the rewriting of curricula and combined with guidelines given by Ministry of Education promoting sustainable development in universities, the status and implementation of environmental issues will undoubtedly be strictly reviewed.

The university of applied sciences tasks defined in the legislation; teaching and learning, regional development, and research and development supporting regional development, must all be reconsidered from the viewpoint of the strategic intention of a university of applied sciences, i.e. the strategy must be implemented on business level too. Environmental strategy and environmental education should come up in the development of knowledge in the respect of general understanding about the environmental issues, work duties and practices of the professional field, and development of these. Combined together with Rohweder's holistic approach, the strategy can

contribute also to students. Development of environmental knowledge according to the strategic intention can take place in the organization through this approach among all stakeholder groups but a real impact on students can be generated via the holistic model by linking scientific knowledge (education about), values and attitudes (education for), and definite actions with the tasks of the universities of applied sciences, as described in Figure 9.

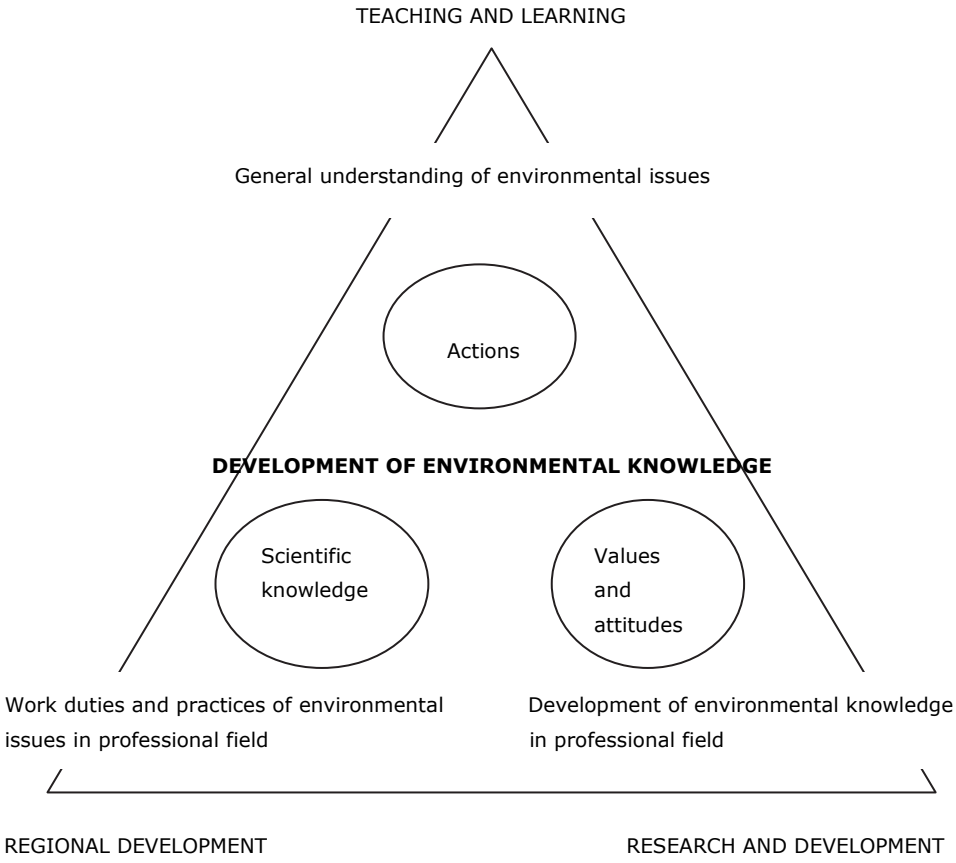

Figure 9: Development of environmental knowledge in a university of applied sciences

The outcome of a holistic approach to environmental strategy implementation in a university of applied sciences combines the tasks of universities of applied sciences with environmental education contributing an extensive impact on the development of environmental knowledge among students and other stakeholders of universities of applied sciences.

5.2 ENVIRONMENTAL ISSUES IN CURRICULUM AND STUDY UNIT DEVELOPMENT

Bringing environmental issues to the curricula of universities of applied sciences is a demanding task compared with lower educational levels, where there is available a national framework forming the basics of curriculum. In the universities of applied sciences, this framework must be led from tasks, pedagogy, and degree structure of the universities of applied sciences, and the needs and expectations set by the stakeholders. The position of the universities of applied sciences is therefore more independent, letting them decide themselves about curriculum contents and emphases.

From the viewpoint of curriculum development it must be considered how widely and in which studies environmental issues should be included. Earlier knowledge and experience of this are limited, but there has been one experimental project which has given guidelines to the work. The project called 'SUDENET' took place in the years 2003-2006, aiming to support the Finnish universities of applied sciences on the path of sustainable development. The project was based on the decision of Ministry of Education, where educational institutions were committed to the implementation of Baltic E21 Programme. According to the programme requirements, each university of applied sciences prepares their own action plan for sustainable development evaluating current practices and activities related to teaching as well as to research and development, in order to correct potential deficiencies and barriers (Ministry of Education, 2002b). As the project result, it was recommended that sustainable development must be combined to the studies by mainstreaming, and in a way that it covers the main parts of degree structure. This presumes that general learning objectives of sustainable development are defined in the whole university of applied sciences. (Laininen 2007)

Figure 10 suggests how environmental issues could be incorporated in university of applied sciences studies, i.e. implemented on operational strategy level. The starting point is the strategy of a university of applied sciences and commitment to environmental issues, as started earlier. This should be implemented on operational/ functional levels by defining common and general objectives for environmental knowledge in all fields of study. This provides a good basis for more detailed, study field specific (and possibly degree specific) objectives and curriculum contents. A holistic approach, including the principle of mainstreaming, covers the degree structure in an extensive way by incorporating environmental issues to all studies. Basic studies include defined common studies on environmental issues and provide

general understanding and knowledge of environmental questions. This can be implemented for example via a compulsory study unit or by mainstreaming. Professional studies give environmental knowledge related to the students' own professional field, its products and services and working practices.

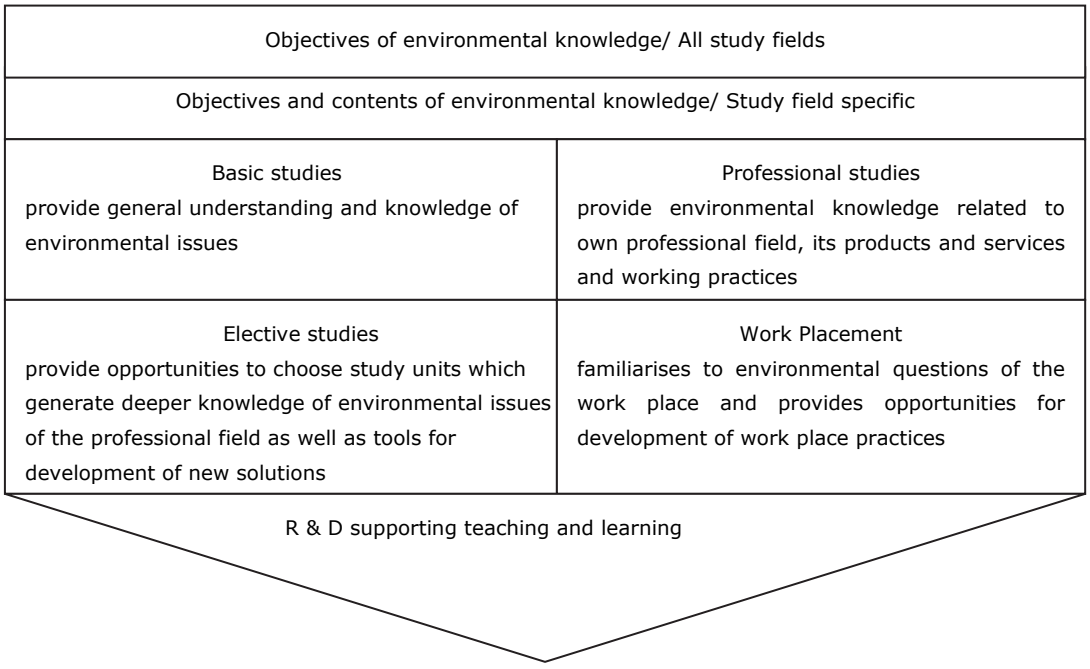

Figure 10: Incorporation of environmental issues in university of applied sciences studies

Environmental issues are included in studies by mainstreaming and are focused on applicable study units. Elective studies provide opportunities to choose study units which generate deeper knowledge of environmental issues of the professional field as well as offer tools for the development of new solutions. Work placement periods familiarise students with the environmental questions of the work place and can also provide opportunities for the development of work place practices in environmental questions. The R&D work at the university of applied sciences is to be combined with the studies and it supports teaching and learning.

Incorporation of environmental studies in curriculum can be encouraged by the decision-making and implementation of presented operational strategy in a university of applied sciences, but it still leaves open the practical planning and implementation process of a specific study unit. Thus, it is needed a strategic approach, being concerned with long-term goals and ways of pursuing them that affect the system as a whole, i.e. bringing environmental

issues to the curriculum in a holistic way, but it should include tactical decision-making addressing shorter-term goals and ways of reaching them that generally affect just a part of the organization, i.e. here on the study unit level. In all, every strategic level must be covered in order to be able to incorporate environmental studies in the curriculum in a profound and extensive way. For example, a decision of the mainstreaming of environmental issues in curricula is not an adequate solution. As the findings revealed, lecturers may include environmental issues in the implementation of their study unit contents, but because this is not made visible in study unit description in the curriculum, the outcome cannot be assured to cover environmental issues.

As discussed earlier, curriculum development including study unit development is based on the idea of continuous improvement. This idea combined together with Rohweder's holistic approach, based on the principle of environmental education whereby education about (knowledge), education for (values) and the promotion of action for sustainable development should have equal weight when planning the learning process, can provide a tactical tool for study unit development. The development of environmental knowledge on a study unit is approached from a process perspective, where planning, implementation, evaluation and improvement follow each other (Figure 11). The phase of a planning of a study unit involves that how environmental issues are planned to be incorporated in study units, their objectives, contents and methods. In other words, an implementation plan of a study unit is made. In the second phase, this plan is implemented so that three elements are included; education about (environmental knowledge based on scientific knowledge), education for (values and attitudes) and the promotion of action for better environmental performance. Third, a study unit is evaluated; whether objectives are achieved, the planned contents covered, and methods been appropriate and relevant. The implementation of three elements is assessed. Finally, improvement of a study unit takes place; the objectives, contents and methods of a study unit are developed. Good practises and development ideas are exchanged at least inside the organisation but possible also between colleagues from other organisations and between other relevant stakeholder groups involved in a study unit, e.g. visiting lecturers, company partners etc. The purpose is to transfer good practises among all study fields in order to develop environmental knowledge among all stakeholder groups. The improvement process again has impact on the planning of the next implementation of the study unit, which assures the continuous development of environmental knowledge. The contribution of this holistic circle is that environmental knowledge is provided in studies and environmental issues are involved in study units on a more profound and systematic basis than earlier.

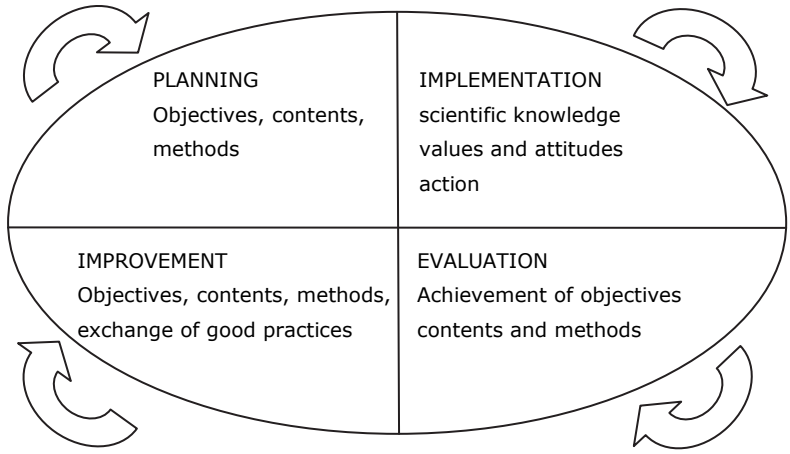

Figure 11: Incorporation of environmental issues in a study unit as a continuous improvement process

It was discussed how qualification based thinking in the universities of applied sciences is encouraged both nationally and on the European level, and how this development calls for new definitions for qualifications in bachelor degrees. This will lead to the rewriting of curricula and combined with guidelines given by Ministry of Education promoting sustainable development in the universities of applied sciences, the status and implementation of environmental issues will be re-examined. The situation provides new a good opportunity to real improvements in curricula. When the curricula are rewritten focusing on qualifications and described by knowledge, skills and competence provided by the degree and its study units, environmental issues should be combined to all stages of this work in order to assure a real change and improvement in business education at the universities of applied sciences.

5.3 CONCLUDING REMARKS AND FURTHER RESEARCH

When considering environmental issues in higher business education, the observations often focus on the specific elements or titles of environmental issues. These elements are naturally crucial in order to cover the subject but this approach is risky in its narrowness. Today in organisations, both in educational institutions and businesses, the approach to environmental issues involves a wide range of issues and it should be holistic and integrated by nature in order to make a real improvement in strategies and policies of an

organisation. In educational institutions, this includes the contents and implementation of environmental issues in education but also in the organisation's strategic choices and decisions.

In the business world, companies must be more and more creative, agile and responsible citizens. If business education is to meet these needs of businesses in this rapidly evolving environment, it will also have to become more creative, agile, and responsible. This will require organisations seeing both themselves and the future differently and from a strategic perspective. These future focused organisations will have to learn more strategic thinking and holistic perspective in all their actions than today's educational institutions. By implication, the organisation, functions and procedures of this new organisation will be different from the traditional ways of actions today, e.g. not developing the education just by adding new topics in curricula. Integrating environmental involvement with university strategy and tasks is required to ensure that attention is focused on a more holistic approach. There is no single blueprint what higher business education should do better to reach this objective, which is assumed by the educational policy too; a vision, strategy, planning, execution, evaluation and common sense are all needed. Changes in one aspect of the educational institution can have a ripple effect throughout other parts of the organisation, and even the finest plans may fail without sufficient application of common sense, including regular dialogue with businesses around.

A limitation of this study is the extent, complexity and dynamic nature of the concept of environmental issues. Further studies could, for instance, concentrate on the later development of environmental issues, or even wider issues such as responsible business issues, in business curricula in the universities of applied sciences, whether and which changes are taking place. However, the objectives of this study can be considered achieved and the research questions have been answered. The study is hopefully useful for business educators in different institutions of higher education, concerned with the challenges of environmental questions in education. All educational institutions have their own understanding about environmental issues and their emergence in our society and businesses, with perhaps a different emphasis, but most concerns can be supposed to be the same, how to approach the issue in education in an integrated and holistic way. Still, further studies could give more profound information on the development and good practices in these approaches.

This study claims the systematic evaluation of curriculum changes; i.e. whether curricula are able to answer for changing needs and expectations of the society and renewed accordingly. The trend seems to be towards a hybrid

curriculum, integrating and blending themes which are considered crucial and significant, as permeable themes in study contents. However, if these themes, for example environmental issues, are not described in an outward and perceptible way in written curricula, there is a danger that the themes are not permeable but occasionally even non-existent. The curricula need to be rewritten focusing on learning outcomes they provide, and if they described by knowledge, skills and competencies provided by the degree and its study units, environmental issues should be combined to all stages of this work in order to assure a real change and improvement in business education at the universities of applied sciences.

In the future, we should be able to arouse such curriculum-based research, which provides as updated and current information as possible concerning educational processes, i.e. in practice we need the very fast evaluation of the education, especially the evaluation of expediency of the education. It is no more possible to view the situation as still in early years of 2000, that major changes in education require at least a decade. The education should focus more on general competencies expected in the working-life and accept that many specific professional abilities are adapted in practical work. This is, and must be, supported by the educational policy as well. The education is maybe no more able to offer very narrow profession-based competencies, because the changes in the working-life are so quick and not predictable. It is sometimes asked that who we should integrate into education planning and curriculum development to tackle future competencies in the working-life. Erno Lehtinen, Professor of Education and Academy Professor answers that there is not a simple answer:

> "It is a difficult question and it always will be. In higher education, we base the education on best possible knowledge, simultaneously having some relevant connections to the field of education. It is needed regular, systematic change of ideas and experiences with several stakeholders. Educators should spend every now and then some time in working life. We should not think that students' competencies can be developed so that the change takes place 'once'; e.g. during their study time, students should spend different time periods in different learning environments, get familiar with different methods, get different contacts and connections in order to develop their future competencies in the best possible way" (Lehtinen 2011).

Curricula should be designed and developed in an open and network-based environment in order to observe societal development pressures emerging from the economy, to react to them, and to act in a value increasing way in national and global value chains. The circle of continuous improvement

contributes not only to the continuous development of the included elements in curricula but also ensures the competencies and professional qualifications of students. This professionalism is responsibility-centered as well as development-oriented; it encourages actors to absorb and create new knowledge, which supports creating innovations in working life. The nature of work is getting increasingly 'noteless' or 'scriptless'. It is more and more common that the methods how to achieve the goals are not predetermined. This kind of work calls for different competencies than the work where the goals and methods are exactly known. The danger is that we still educate students to strictly and exactly defined professions and to jobs assuming individual work contribution, even if the working life is developing into another direction. The Finnish education has generated good maverick performers, which does not meet the case anymore. Creativity and the entrepreneurial attitude are assumed, which both refer to wish and ability to see opportunities and seize them. The key elements for a postmodern curriculum, flexibility and fastness, can be a powerful starting point for this development.

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Appendixes

APPENDIX 1. TUAS survey

In this empirical study the concept of 'business graduates' refers to both business degrees of higher education (universities of applied sciences and universities) in Finland, i.e. Bachelors in Business and Administration graduating from universities of applied sciences as well as Masters of Science in Economics and Business Administration graduating from schools of economics and business administration. It was concluded to use this definition in the questionnaire of the survey for following reasons. It is probable that SMEs' expectations concerning the environmental knowledge of business graduates do not vary considerably between a Bachelor's and a Master's degree. Additionally, it has been studied earlier that differences in knowledge between these degrees in not known well among employers even on a general level (e.g. Parikka 1999; Tradenomiliitto 2001), or relating to their environmental knowledge.

The study is based on an electronic survey conducted during 2005. A quantitative approach was chosen because of the high number of respondents (1200 companies). The starting point for the sampling was the following: to focus especially on SMEs on those business fields which usually employ business graduates. The reason for focusing on SMEs was that most of companies are SMEs (about 99%) and they also offer the major share of jobs, both in Finland and in the whole of Europe. The definition of SMEs here is based on the EU definition, stating that the number of personnel is less than 250 persons in SMEs. (European Commission, 2005). The biggest employers for business graduates from universities of applied sciences are services (about 60%) and industries (about 30%). By services it is meant trade, services for business life, IT related services, financing and insurance, and other services. Industry covers metal and electro technical industries, other

industries, energy and consumption and telecommunications. (Tradenomiliitto, 2005) The division in sampling was done by according similar proportion principle, choosing 2/3 of respondents from the service sector and 1/3 from industries.

The survey was conducted via the Internet, by collecting the e-mail addresses of the companies, sending them the questionnaire electrically, and collecting the answers from an electronic database. The software tool used here was SPSS Data Entry 3.0. The sample size was 1200 companies (800 from services, 400 from industries), assuming to have a response rate of about 10%, typical in electronic enquiries. The respondents were also divided geographically representing the whole area of Finland. Most companies operate in southern parts of Finland, and for this reason 25% of respondents represent Helsinki/ Uusimaa region, 25% Pirkanmaa/Häme regions, 25% Varsinais-Suomi/ Satakunta region and 25% rest of Finland.

The e-mail addresses were collected from an electronic company catalogue listing all companies in Finland. There was usually one e-mail address given in the catalogue, being usually a general e-mail address of the company. In the covering note it was stated that the e-mail and the questionnaire are targeted for the person responsible for recruitment and personnel administration of the company. The search was done according the above mentioned principles. The aim was to get precisely same number of data from each region, so that e.g. while considering the industrial companies (all together 400 companies) the number was divided by the number of regions (4; Uusimaa, Pirkanmaa, Varsinais-Suomi and the rest of Finland) resulting to 100 industrial companies from each region. For example in the region of Uusimaa there are around 1728 industrial companies and we divided that amount with 100, we got 17. This calculated number 17 defined the precise data collection method; every 17th company was collected to the sample. This same sort of sampling method was used in gathering the data from all four different regions and in both two business fields. Thus, the sampling method used was stratified sampling with proportional allocation.

The questionnaire was placed in the Internet. The covering letter explaining the purpose of the study and including a hyperlink to the

questionnaire was sent to the respondents by e-mail. The respondent only had to click the hyperlink to open the questionnaire, answer the questions and click "send" button, which all took about 5 minutes.

The questionnaire had 10 questions, three of them providing basic information about the respondent (business field, size and location of the company). The second two questions aimed to find out the company situation in environmental questions, describing those company functions where environmental issues come up and with which interest groups. The sixth and the widest question focused on the company expectations concerning the environmental knowledge of business graduates. The respondents were asked to evaluate how well a business graduate as their employee should know the listed environmental issues (very well, well, to some extent, slightly, not at all). The list of environmental issues covers the major environmental questions essential for most companies and it is based on the definition of environmental issues presented by Ministry of the Environment in Finland (Ministry of the Environment in Finland, 2005). The seventh question had the same purpose. The environmental issues listed in the earlier question were now grouped, using the classification of the Ministry, with a view to ensure the earlier given answers. The respondents were asked to rank the categories by choosing the most and the second important category for their company. The eighth question asked the respondents about the company needs for internal environmental education, again with an aim to find out the potential wants and requirements for environmental knowledge. The ninth question aimed to confirm if the respondents consider environmental knowledge to be important especially for their employees with a business degree. Finally, the last question was open so that the respondents could describe especially their company-specific expectations for environmental knowledge of business graduates.

To improve the answering rate, all the respondents received a reminding e-mail after one week from the first e-mail. Altogether, the electronic form was available in the Internet for three weeks. 165 complete and usable questionnaires were returned electronically, the response rate being 13.8%, which can be considered as typical and acceptable in web surveys. Several studies describe low e-mail survey response rates, e.g. Schuldt and Totten (1994) reported a 19% electronic

response rate compared to a 57% mail response. Similar findings are reported by Couper, Blair, and Triplett (1997) and Swoboda et al. (1997). The responses were analysed with SPSS software.

Findings

The division of the companies according to the business field was 43% of respondents representing the field of industries and 57 % the field of services. The size of the companies according to the number of personnel was divided so that the major share (61.2 %) of the respondents was small companies having 10-49 employees. The questionnaire was sent only to SMEs, but still more than 11% respondents represent big companies, probably due to inaccuracies in the electronic company catalogue concerning company sizes. Turku area (Varsinais-Suomi, Satakunta) was most represented among the respondents. The division of the companies' business field, size and location is presented in the table 1.

TABLE 1. The share of respondents according to the business field, size and location.

Company information		**Percent**
Business Field	Industry	43
	Service	57
	TOTAL	100
Number of personnel	1-9	10.5
	10-49	61.2
	50-99	7.9
	100-250	8.6
	More than 250	11.8
	TOTAL	100
Location	Varsinais-Suomi, Satakunta	34.4
	Pirkanmaa, Häme	18.5
	Uusimaa	19.9
	Rest of Finland	27.2
	TOTAL	100

The respondents were first asked to list all company functions which are connected with environmental issues in respective company. About 60% of respondents considered that environmental issues are most linked with their company's purchasing decisions and operations. About 40% of respondents considered environmental questions to be related also to their company's production, general decision making, warehousing, transportation, product safety, operational strategies, choice of partners and marketing. The responses were parallel for both fields of businesses; both industrial and service companies considered environmental issues to be connected most with purchasing operations. The business field linked with production operations brought up the only clear difference, environmental issues being clearly more important in production for industrial companies. In all, the responses being parallel in both business fields it is notable that the share of positive answers (= environmental questions are related to the company function in question) was clearly higher for industries in every question here. On the basis of the study material, the significance of environmental issues in company functions seems to depend on the company size too, the importance being highest in companies with 100-250 employees.

It was also studied if environmental issues come up in relationships with the company's interest groups. Of 165 respondents more than the half considered environmental issues to be involved with the company relationships with final customers, personnel, authorities and suppliers. Environmental questions come up quite often also in contacts with subcontractors but were not considered important in relationships with e.g. resellers, owners and investors or the media. The responses were similar for both fields of businesses; both industrial and service companies considered environmental issues to be involved especially with the company relationships with final customers, personnel, authorities and suppliers. Again, the share of positive answers (= environmental questions come up in relationships with the interest group in question) was higher for industries in every question here. Related to the company size, environmental issues were most involved with interest groups in companies with 100-250 employees. The company location did not seem to have impact on the answers here or in the earlier question.

Environmental issues were grouped in five categories and the respondents were asked which category they considered to be the most important to command by a business graduate employed by respective company. The categories were:

1. Environmental management systems (e.g. ISO 14001, EMAS, certification)
2. Environmental / social responsibility reporting (e.g. reporting, communications, environmental costs)
3. Environmental legislation and regulations
4. Environmental impacts and risks (e.g. technologies, releases, waste, energy, chemicals, questions concerning air, water and soil)
5. Products and purchasing (e.g. product planning, packaging and labelling, standards, transportation, logistics)

Environmental legislation as well as products and purchasing were mentioned to be of the most significance. The findings are presented in the table 2. However, when comparing the business fields, there are slight differences between these, environmental legislation being the most important category for industries, and products and purchasing for services companies. Also company size seems to have impact on that which environmental issues are considered as most important for a company. Environmental legislation and regulations formed the most important category for small companies (1-9 and 10-49 employees) as well as for big companies (more than 250 employees). For companies with 50-99 employees, products and purchasing were more important, legislation issues forming the second crucial category. The diverse results in companies with 100-250 employees showed that products and purchasing were their most significant category, environmental management systems being the second most important and legislative issues forming the least important category.

TABLE 2. Categories of environmental issues considered to be the most important to command by a business graduate employed by respective company.

Category	Percent of all	Percent / industries	Percent / services
1.	10.7	8	13.4
2.	13.3	15.1	11.5
3.	30	33.8	26.2
4.	18.7	18.5	18.9
5.	27.3	24.7	29.9

Environmental issues considered to be important to command by a business graduate employed by respective company were also asked as separate topics. The majority of all respondents considered that a business graduate needs to command several environmental issues *well*, such as environmental responsibility, waste management and recycling, sustainable development and social responsibility, environmental risks, environmental impacts, life cycle analysis and environmental communication. They were also expected to know *to some extent* the issues such as EMAS, environmental management systems, certification, environmental reporting, ISO 14001, chemicals, environmental management, energy consumption, releases, environmental accounting, protection or air, water and soil, and environmental costs. The clear minority of all respondents considered that business graduates should command any of these issues *very well*, or *slightly*, or *not at all*. In the open question the respondents were asked if there are any other environmental issues than those listed which a business graduate should command. The only new issue outside the earlier listed topics was environmental legislation. In addition to this it was emphasised that some of the earlier listed issues are especially important, such as ethics and morality in decision making as well as understanding of environmental issues in all communication, marketing and sales. It was also often stated that basic knowledge of environmental issues is expected from a business graduate.

There were also some differences between business fields. In industries, business graduates were more expected to know well environmental managements systems, certification, ISO 14001 and EMAS, environmental accounting and costs while in services good knowledge

was expected more in waste management and recycling, environmental responsibility, environmental risks, and sustainable development and social responsibility. In other topics the responses were quite equal. There were also some differences in responses in companies of different sizes. Especially very small companies with 1-9 employees expressed their need for a business graduate having a good knowledge of several environmental issues. Companies with 100-250 employees for their part emphasized a good command of environmental reporting and communication, and big companies with more than 250 employees expected knowledge especially in understanding of environmental impacts.

The respondents were asked if their company has had or is planning any environmental education or training. The answers were divided equally, 50% stating that they had had or were planning some education. The reasons mentioned were legislation, implementation of environmental management systems and certification process, better communication and marketing and that environmental issues in general are important for the company success. Those respondents who were not interested in environmental education mentioned that there is no need or resources. The responses reviewed in the context of business fields resulted in the finding that environmental education was more current for industries than for services. About 62% of industrial companies had had or were planning some environmental education while about 60% of service companies were not. Also company size contributed to the results. More than 75% of companies with 100-250 or more 250 employees had had or were planning environmental education while less than 40% of smaller companies doing so.

70% of the companies responded positively to the short and direct question if the respondents considered that environmental knowledge is important especially for their employees with a business degree. They were also asked to justify their view in an open question. The majority of "yes"-answers were explained so that it is necessary for a business graduate to have the basic knowledge of environmental issues to manage their everyday tasks in a company. It was also emphasised that versatile and deep environmental knowledge is needed in many companies, and this requirement will increase further. Many respondents stated that the requirements naturally depend on the job

description of a business graduate, but good basic knowledge is always needed. Communication, marketing and reporting were mentioned often as examples of tasks requiring good environmental knowledge. Also accounting and safety related tasks have similar expectations. "No"-answers (environmental knowledge not expected from a business graduate) were justified with two bases; either there is no need for this knowledge, or that the knowledge required is so demanding that is cannot expected from a business graduate but environmental expert knowledge is needed. There were no notable differences in responses between business fields or companies of different sizes. Company location did not demonstrate to have particular impact on the responses.

APPENDIX 2. KEY CONCEPTS OF THE STUDY

UAS

University of applied sciences (in Finnish abbreviated AMK, the term 'polytechnic' is also frequently used). Together with traditional universities they form the Finnish higher education system. The universities of applied sciences offer Bachelor's and Master's Degrees in Finland.

TUAS

Turku University of Applied Sciences

Study field

There are eight different study fields at Finnish universities of applied sciences focusing on different fields of working life, such as Humanities and Education; Culture; Social Sciences, Business and Administration; Natural Sciences; Technology, Communications and Transport; Natural Resources and the Environment; Social Services, Health and Sports; and Tourism, Catering and Domestic Services. There can be several different degree programmes under each study field.

Study field of Social sciences, business and administration

Degree programmes at universities of applied sciences in Finland leading to the degree 'bachelor of business administration' form this study field. There are also some exceptions; degree programme in business information technology belongs to the study field of natural sciences, and degree programme in library and information services to the study field of arts and media. These both lead also to BBA degree and have an essential amount of business studies included in their curricula and are therefore partly involved in this study.

BBA

Bachelor of Business Administration

Degree programme (DP)

Universities of applied sciences in Finland have several different study fields, which have their own degree programmes having their own curricula. Degree programmes are confirmed by the Ministry of Education in Finland.

Degree structure

The Bachelor's Degree includes basic and professional studies, optional and/or elective studies, work placement and thesis. The extent of the studies is 210-270 credits and it takes 3.5 to 4.5 years to study the degree.

Specialization line

A degree programme can have one or more different specialization lines emphasizing various professional fields of expertise. I.e. basic studies are the same in the degree programme but professional studies have different professional focuses.

Annual intake

The annual student intake in higher education is equivalent to about 65% of the average size of the 19–21 age groups. In the autumn of 2009, 33 676 students started their studies in degree programmes of universities of applied sciences. Altogether there were 128 906 students at universities of applied sciences in the autumn of 2009.

Curriculum

A curriculum is a document, which describes interpretations of expertise written by an educational community and the general guidelines how the curriculum development takes place in universities of applied sciences is given in the law and decree on university of applied sciences studies.

Study module

A study module consists usually of several study units, or its extent is at least wider than the extent of a study unit.

Study unit

A study unit is a base unit of studies, and it is described in the curriculum. Study units can be compulsory, optional or elective. Study unit descriptions in the curriculum describe the objectives and contents, extent, time, implementation, assessment criteria and language of instruction for each study unit.

Credit

Credits express a relative measure of the student workload. 60 credits represent the workload for the full academic year of study. The extent of Finnish polytechnic degrees is based on European Credit Transfer System (ECTS) at well as the university degrees. The ECTS originates from the Bologna Declaration aiming to achieve comparable degrees on the European level.

APPENDIX 3. ELECTRONIC SURVEY

Hyvä vastaanottaja

Tämä on kutsu osallistua kyselyyn jonka tarkoituksena on selvittää ympäristöaiheiden asemaa ammattikorkeakoulunne tradenomikoulutuksessa.

Tuloksia hyödynnetään tutkimuksessa, joka pyrkii selvittämään ympäristöaiheiden asemaa tradenomikoulutuksessa valtakunnallisesti. Toimitamme teille yhteenvedon tuloksista tutkimuksen valmistuttua.

Kysely on tarkoitettu ammattikorkeakoulunne tradenomikoulutuksen opetussuunnitelmista vastaaville henkilöille. Kyselyyn voi vastata kerrallaan vain yhden koulutusohjelman osalta. Tämän sähköpostin vastaanottaja-kentästä näette keille kysely on lähetetty omassa ammattikorkeakoulussanne. Toivon että voitte toimittaa tämän viestin eteenpäin jos nykyinen vastaanottajalista ei kata kaikki tradenomikoulutuksenne koulutusohjelmia ja niistä vastaavia henkilöitä. **Tavoitteena on että kyselyyn osallistuvat kaikki ammattikorkeakoulunne tradenomikoulutusta antavat koulutusohjelmat** (ei ylempi amk)**.**

Vastaaminen vie aikaanne vain muutaman minuutin. Kyselyyn vastaaminen tapahtuu nimettömänä, joten noin kahden viikon kuluttua saatte vielä muistutuksen asiasta.

Kyselyyn pääsette vastaamaan oheisesta linkistä.

http://queries.turkuamk.fi/ymparistokysely/WebFiles/index.htm

Jos kysely ei avaudu osoitetta klikkaamalla, niin kopioikaa yo. linkki ja käynnistäkää internet-selainohjelmanne. Lomake toimii Explorer- tai Netscape-selaimella. Liittäkää linkki selaimen osoitekenttään ja painakaa enteriä.

Vastauksistanne etukäteen kiittäen,

Taru Penttilä, yliopettaja

Turun ammattikorkeakoulu/ Tekniikka, ympäristö ja talous

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YMPÄRISTÖAIHEET AMMATTIKORKEAKOULUJEN LIIKETALOUDEN KOULUTUKSESSA (TRADENOMIKOULUTUS)

Vastaajan ammattikorkeakoulu. Valitkaa listasta se ammattikorkeakoulu, jonka tradenomikoulutukseen vastauksenne liittyvät.

Mihin yhteiskuntatieteiden, liiketalouden ja hallinnon alan koulutusohjelmaan vastauksenne liittyvät?

Mikä on koulutusohjelman aloituspaikkamäärä vuonna 2006?

Mikä on ensisijainen tehtävänne ammattikorkeakoulussa?

Minkä nimisiä ympäristöaiheisia opintojaksoja tai -moduuleita tiedätte olevan koulutusohjelman opetussuunnitelmassa?

Ympäristöaiheet voivat sisältyä myös sellaisiin opintojaksoihin/ -moduuleihin, joiden nimet eivät viittaa ympäristöaiheisiin. Valitkaa kaikki ne koulutusohjelman opetussuunnitelman aihepiirit, joiden opintoihin tiedätte sisältyvän myös ympäristöopintoja.

- ☐ Markkinointi
- ☐ Taloushallinto
- ☐ Logistiikka, ostotoiminta, toimitusketjut

- [ ] Johtaminen ja hallinto
- [ ] Juridiikka
- [ ] Viestintätaidot
- [ ] Kansantalous,kansainvälinen talous, globalisaatio
- [ ] Muu

Jos valitsitte edellisessä kysymyksessä vaihtoehdon muu, niin minkä aihepiirin opinnoista on kyse?

Mikäli koulutusohjelman opetussuunnitelmassa on opintojaksoja/ -moduuleja, joiden nimestä käy ilmi että ne sisältävät ympäristöaiheisia opintoja, niin valitkaa seuraavista kaikki ne vaihtoehdot, joiden nimi muistuttaa läheisesti ko. jaksojen/ -moduulien nimiä (Vieraskielisissä koulutusohjelmissa vastaava nimi opetuskielellä).

- [ ] Yritys ja ympäristö; ympäristöaiheet liiketoiminnassa
- [ ] Ympäristöjohtaminen
- [ ] Ympäristöviestintä, sidosryhmäviestintä
- [ ] Ympäristölaskenta
- [ ] Ympäristölainsäädäntö
- [ ] Ympäristöteknologia
- [ ] Logistiikka ja ympäristö

- [ ] Ympäristömarkkinointi
- [ ] Kestävä kehitys
- [ ] Yhteiskuntavastuu
- [ ] Yritys ja kestävä yhteiskunta
- [ ] Etiikka
- [ ] Muu

Mikäli vastasitte edelliseen kysymykseen muu, niin minkä nimisiä opintojaksot/ -moduulit ovat?

Opiskellaanko ympäristöasioita erillisinä vai sisältyvätkö ympäristöaiheet muiden aihepiirien opintoihin ?

Kuvailkaa ympäristöaiheisten opintojen asemaa koulutusohjelman pakollisissa opinnoissa.

- [ ] ei ole/ merkityksetön
- [ ] vain vähän merkitystä
- [ ] jonkin verran merkitystä
- [ ] tärkeä asema

Kuvailkaa ympäristöaiheisten opintojen asemaa koulutusohjelman valinnaisissa opinnoissa

- [ ] ei ole/ merkityksetön

- ☐ vain vähän merkitystä
- ☐ jonkin verran merkitystä
- ☐ tärkeä asema

Jos koulutusohjelmassa on pakollisia ympäristöaiheisia opintoja, niin mikä on niiden määrä opintopisteinä?

- ☐ 1-5 op
- ☐ 6-10 op
- ☐ 11-15 op
- ☐ 16 op tai enemmän

Jos koulutusohjelmassa on valinnaisia ympäristöaiheisia opintoja, niin mikä on niiden määrä opintopisteinä?

- ☐ 1-5 op
- ☐ 6-10 op
- ☐ 11-15 op
- ☐ 16 op tai enemmän

Montako koulutusohjelman opiskelijaa keskimäärin suorittaa vuosittain pakollisia ympäristöaiheisia opintoja?

- ☐ Ei yhtään
- ☐ 1-20
- ☐ 21-40
- ☐ 41-60

☐ 61 tai enemmän

Montako koulutusohjelman opiskelijaa keskimäärin suorittaa vuosittain valinnaisia ympäristöaiheisia opintoja?

☐ Ei yhtään

☐ 1-20

☐ 21-40

☐ 41-60

☐ 61 tai enemmän

Kuvailkaa ympäristöaiheisten opintojen asemaa koulutusohjelman opetussuunnitelmassa valitsemalla mielipidettänne parhaiten kuvaava vaihtoehto.

	Täysin samaa mieltä	Melko samaa mieltä	En samaa enkä eri mieltä	Melko eri mieltä	Täysin eri mieltä
Ympäristöaiheet näkyvät itsenäisinä opintoina opetussuunnitelmassa	☐	☐	☐	☐	☐
Ympäristöaiheet sisältyvät selkeästi opintoihin vaikka niitä ei näy selkeästi erillisinä opintoina	☐	☐	☐	☐	☐
Ympäristöaiheiden opiskelu koulutusohjelmassa on vähäistä	☐	☐	☐	☐	☐
Koulutusohjelmassa ei tietääkseni opiskella ympäristöaiheita	☐	☐	☐	☐	☐
Ympäristöaiheet liittyvät opintoihin erilaisten tapahtumien kautta (esim. seminaarit, näyttelyt, messut)	☐	☐	☐	☐	☐

Ympäristöaiheet liittyvät opintoihin t&k-hankkeiden ja/tai erilaisten projektien kautta.	☐	☐	☐	☐	☐

Millaisia opetusmenetelmiä ympäristöaiheisissa opinnoissa käytetään koulutusohjelmassa? Valitse sopivin vaihtoehto kunkin menetelmän kohdalla.

	Käytetään paljon	Käytetään melko paljon	Käytetään jonkin verran	Käytetään harvoin	Ei käytetä
Luennot ja keskustelut	☐	☐	☐	☐	☐
Kirjallisuus	☐	☐	☐	☐	☐
Case-opinnot	☐	☐	☐	☐	☐
Ulkopuoliset luennoitsijat	☐	☐	☐	☐	☐
Työharjoittelu	☐	☐	☐	☐	☐
Projektit	☐	☐	☐	☐	☐
Verkko-opinnot	☐	☐	☐	☐	☐
Muu	☐	☐	☐	☐	☐

Mikäli vastasitte edelliseen kysymykseen muu, niin millaisia muita opetusmenetelmiä tarkoitatte?

Mitkä tekijät ovat mielestänne tuoneet ympäristöasioiden opiskelun osaksi opetussuunnitelmaa?

	Eritäin suuri vaikutus	Melko suuri vaikutus	Jonkin verran vaikutusta	Vähäinen vaikutus	Ei vaikutusta
Yksittäiset opettajat	☐	☐	☐	☐	☐
Koulutusohjelman/ tulosalueen johto	☐	☐	☐	☐	☐
Ammattikorkeakoulun johto/ strategia/ visio	☐	☐	☐	☐	☐
Ammattikorkeakoulun imago ja maine	☐	☐	☐	☐	☐
Opiskelijat	☐	☐	☐	☐	☐
Liike-elämän ilmaisema tarve	☐	☐	☐	☐	☐
Ympäristöjärjestöt tai -verkostot	☐	☐	☐	☐	☐
Viranomaiset	☐	☐	☐	☐	☐
Muu	☐	☐	☐	☐	☐

Mikäli vastasitte edelliseen kysymykseen muu, niin mitä tekijöitä tarkoitatte?

Kuvailkaa ammattikorkeakoulunne suhtautumista ympäristöasioihin

	Kuvaa hyvin	Kuvaa jossain määrin	En osaa sanoa	Kuvaa vähän	Ei kuvaa yhtään
Ammattikorkeakoulun sitoutuminen ympäristöasioihin näkyy arkipäivän toiminnassa	☐	☐	☐	☐	☐
Ammattikorkeakoulun sitoutuminen ympäristöasioihin on ilmaistu laatujärjestelmässä	☐	☐	☐	☐	☐
Ympäristöasiat näkyvät ammattikorkeakoulun strategiassa ja/tai visiossa	☐	☐	☐	☐	☐
Ammattikorkeakoululla on yhteiskuntavastuuraportti	☐	☐	☐	☐	☐
Ammattikorkeakoululla on sertifioitu ympäristöjärjestelmä	☐	☐	☐	☐	☐
Ammattikorkeakoululla on kirjallinen ohjeistus tai suositus ympäristöasioiden sisällyttämisestä opetussuunnitelmiin	☐	☐	☐	☐	☐

Kuvailkaa elinkeinoelämän suhtautumista ympäristöasioihin.

	Kuvaa hyvin	Kuvaa jossain määrin	En osaa sanoa	Kuvaa vähän	Ei kuvaa yhtään
Elinkeinoelämällä on kasvava tarve ympäristöasioiden hallinnalle	☐	☐	☐	☐	☐
Elinkeinoelämä odottaa myös tradenomien hallitsevan ainakin ns. perustiedot ympäristöasioissa.	☐	☐	☐	☐	☐
Elinkeinoelämä on ilmaissut ammattikorkeakoululle tarpeensa ympäristökoulutukselle liiketalouden koulutuksessa.	☐	☐	☐	☐	☐

Minkä tekijöiden tulevaisuudessa uskotte vaikuttavan ympäristöaiheiden aiempaa merkittävämpään asemaan tradenomien opetussuunnitelmassa

	Erittäin suuri vaikutus	Melko suuri vaikutus	Jonkin verran vaikutusta	Vähäinen vaikutus	Ei vaikutusta
Liike-elämän tarve ja odotukset	☐	☐	☐	☐	☐
Julkinen mielipide, ympäristötuhot, yritysskandaalit jne.	☐	☐	☐	☐	☐
Ammattikorkeakoulun johto/ strategia/ visio	☐	☐	☐	☐	☐
Ammattikorkeakoulun imago ja maine	☐	☐	☐	☐	☐
Viranomaisvaatimukset ja -suositukset	☐	☐	☐	☐	☐
Opiskelijoiden kysyntä	☐	☐	☐	☐	☐
Opetushenkilöstön ympäristöosaamisen lisääntyminen	☐	☐	☐	☐	☐
Muu tekijä	☐	☐	☐	☐	☐

Mikäli vastasitte edelliseen kysymykseen muu tekijä, niin mitä tekijää tarkoitatte?

Muita kommentteja ympäristöaiheiden asemasta tradenomikoulutuksen opetussuunnitelmassa

APPENDIX 4. CURRICULUM TABLE

STUDIES	OP	210	60	60	60	30	
INITIATION OF PROFESSIONAL GROWTH	A025	60.0					Compulsory
Business Operations and Processes	A0146	10.0	10				Compulsory
Customer-oriented Marketing	A0145	10.0	10				Compulsory
Business Operating Environments	A0148	10.0	10				Compulsory
Innovation Process of Products and Services	A0149	10.0	10				Compulsory
Commercialisation of Products and Services	A0150	5.0	5				Compulsory
Business IT skills	01284	5.0	5				Compulsory
Business Communication Skills	A0147	5.0	5				Compulsory
Företaget i fokus	A0065	5.0	5				Optional
Oral skills in Swedish	00634	0.0	0				Optional
Written skills in Swedish	00635	0.0	0				Optional
Basic Finnish 1	A0203	5.0	5				Optional
Written skills in Finnish	00636	0.0	0				Optional
Oral skills in Finnish	00637	0.0	0				Optional
Initial Test in Swedish	00506	0.0					Compulsory
DEVELOPMENT OF CORE COMPETENCES IN THE FIELD	A026	55.0					Compulsory
Management and Leadership	A0151	10.0		10			Compulsory
From Strategy to Practice	A0152	10.0		10			Compulsory
Strategic B-to-B Marketing Management	A0154	10.0		10			Compulsory
From Idea to Business Plan	A0155	10.0		10			Compulsory
Corporate Social Responsibility	A0153	5.0		5			Compulsory
Business Simulation	A0156	5.0		5			Compulsory
Basic Finnish 2	A0204	5.0		5			Optional
Finnish language and Communication	01283	5.0		5			Optional
DEEPENING PROFESSIONAL COMPETENCE	A027	35.0					Compulsory
Creating Innovation through Service Design	A0132	10.0			10		Compulsory
Market Entry Modes	A0157	5.0			5		Compulsory

Sales Management	A0158	5.0			5		Compulsory
Job Placement I	A0136	15.0			15		Compulsory
COMMON STUDIES	**127**	**0.0**					**Compulsory**
ELECTIVE STUDIES	**154**	**30.0**					**Compulsory**
WORKPLACE DEVELOPMENT AND RENEWAL	**A028**	**30.0**					**Compulsory**
Thesis	A0159	15.0				15	Compulsory
Job Placement II	A0137	15.0				15	Compulsory

APPENDIX 5. INTAKE OF STUDENTS IN TUAS AUTUMN 2007 AND 2010

INTAKE OF YOUNG STUDENTS/ TUAS Autumn 2007 and 2010				
BBA education in Social Sciences, Business and Administration				
Degree Programme	**Specialisation**	**Unit (Place of study)**	**Intake of Students 2007**	**Intake of Students 2010**
Total intake			**234**	**290**
DP in Business		Loimaa	20	40
	Business Information Technology Management (2007)			
	Digital Marketing Communication (2010)			
	Business Information and Knowledge Management (2010)			
DP in Business	eBusiness and Marketing (2007)	Salo	41	40
	Entrepreneurship and e-Business (2010)			
	International e-Business (2010)			
DP in Business		Tku, Sepänk.	48	-
	Finance and Insurance Services			-
	Financial Management in SMEs			-
	International Marketing			
DP in Business Logistics		Uusikaupunki	25	48
	Acquisitions management (2010)			
	Development of transport, storage and logistics services (2010)			
	Utilisation of technical applications in logistics (2010)			
DP in Business		Tku, Lemminkäisenk.	74	74
	Marketing (2007 and 2010)			
	Business and Administration (2007)			
	International Operations and Entrepreneurship (2007)			
	Entrepreneurship (2010)			
	Financial Management (2010)			
DP in International Business		Tku Lemminkäisenk.	26	40
DP in Professional Sales		Tku Sepänk.	-	48
	Financing and insurance services			
	Sales management			

APPENDIX 6. INTERVIEW GUIDE

Background

1. introduction, study purpose
2. concepts of environmental issues and related definitions

Main questions

1. Are there environmental issues in curriculum?

2. What are generic labels of study units and modules with environmental contents?

3. What is the position of environmental issues in curriculum? Mainstreaming?

4. What is the extent of environmental issues in curriculum?

5. Which teaching methods are deployed?

6. Which are the drivers for environmental issues in curriculum? How are they identified? Interaction with business life?

7. TUAS internal decision-making; visions, strategies, policies, and their implication in practice in DP?

8. Future plans and visions in DP concerning env. issues in curriculum?