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Youth learning for sustainable development – analysis of experiences of online learning

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ABSTRACT

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Summary: This study is a part of the research project Learning in the ICT-extended university (LiEU), which is conducted by Centre for Learning Lund at Lund University. The purpose of this study is to describe and analyse how upper secondary school students have experienced the Young Masters Program (YMP) and their learning process in the field of sustainable development in the ICT-mediated course with issues such as preventive environmental strategies within the framework of university outreach development.

Through a semi-structured online evaluation questionnaire with both closed and opened questions for the student, data has been collected and an analysis has been carried out. The Young Masters Program seems to be of great importance to the students as individuals and as members of both the local and the global society. In the YMP teenagers explore a learning environment with new ICT-mediated ways of communication including global interaction with ideas and descriptions, and the transdisciplinary approach focusing social, economic, ecological and ethic dimensions. The feedback and the global meetings seem to particularly catalyse the teenagers' commitment for – and their learning process in – a more sustainable direction.

Youth as stakeholders outside the university challenge the academic world and offer a unique opportunity for dialogue about the role of higher institutions in an overall societal transition towards sustainable development. To increase the understanding of how successful learning processes could be designed and carried out as outreach at the university, the YMP might serve as an educative example. Still more research is needed in this new field with this specific target group and in the area of ESD.

Key words: Education for Sustainable Development (ESD), online learning, upper secondary school, Young Masters Program (YMP), teenagers, sustainability and Sustainable Development.

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1 Introduction

1.1 Background

Universities and their staff are facing multiple new challenges as society offers them new roles as motors for development. They are taking on educational outreach tasks in greater numbers and with wider ambitions to shape the world we live in. Internationalisation, educational flexibility, diversity among target groups, trans-disciplinarity in courses and research efforts, competence development in the work-place and innovative use of information and communication technologies (ICT) are some of the issues that are of concern. At the centre of these concerns is the shift from a focus on teaching and academy to students and society; a shift towards learning, but also how to work professionally as a teacher (Laurillard, 2002).

”Lärande Lund” (Learning Lund) is a Centre of Lund University, charged with the task of establishing and supporting developmentally oriented research on and about learning, as it manifests itself in the various enterprises of the university. Learning Lund (LL) is a network, a meeting place and a resource for all who are interested in developing a research-based understanding of learning, and in strengthening their ways of tackling issues related to learning, irrespective of where the learning is located within the university – in relation to teaching, education and research – or in the relationship between the university and the society it serves. One of the projects at Learning Lund is *Learning in the Extended University (LiEU)*. This is an example of research questions tackled with respect to the innovative pedagogical practice of the university, in collaborative groups of educational practitioners, educational developers, and educational researchers. The overriding aim of LiEU is to describe and analyse learning in three distinctly different outreach initiatives and consider the implications of the results for ongoing development and future design. Professor Shirley Booth heads the LiEU project and has been awarded funding by the Committee for Educational Science of the Swedish Research Council during three years, starting from 2004.

LiEU focuses on experienced context and constituted meaning in ICT-supported outreach initiatives involving flexibility and diversity. The courses studied in LiEU are taken by diverse groups of students, spanning age groups, country of residence, nationality, culture, language, and educational background. This project described here is a part of the research project LiEU, which is carried out by educational researcher Birgit Hansson, PhD in Education and MSc, and educational developer Birgitta Nordén, Director of Distance Education YMP/GEYC and MSc Edu. Here the first steps in the study of the Young Masters Program (YMP) for upper secondary school students within the Global Environmental Youth Convention (GEYC) 2004 will be introduced (see below, page 6).

The International Institute for Industrial Environmental Economics (IIIEE) is established by the Swedish Parliament in 1994 at Lund University, as a response to the situation that an understanding of pollution prevention, waste minimisation, design for environment and environmental management has been absent in many organisations. The IIIEE has an international Master of Science Program Degree in Environmental Management and Policy and an extensive and significant research program. Education and research at the IIIEE have focused on the conceptual development and practical testing of innovative tools, methodologies and approaches, which support preventive solutions to environmental problems. Attention is shifting towards new systems for sustainable production and sustainable consumption. The identification of viable strategies represents a challenge to establish new modes of thinking, with existing economic, technological and social systems being open to question. This demands new forms of analysis, multidisciplinary research and

creative visions of future possibilities and learning opportunities.

Among the outreach activities at the IIIIEE the initiative to run a series of YMP (Young Masters Program) is taken. The IIIIEE's present teaching and research development is within YMP adapted to more easily reach those generations who will assume responsibility next. To work with such issues as preventive environmental strategies secondary school students from all parts of the world take part in a mass distance course, followed by a face-to-face convention (GEYC) every second year. The current focus is specifically on Egypt, Dubai and China, where schools, students and their teachers together with – in all 1500 – European and worldwide students are invited. A wider scheme will be run in 2006-2007 and culminate in GEYC 2008 with a convention in Beijing. The long-term goal is to develop a global understanding of the global issue of environmentally sustainable economic and industrial development.

The IIIIEE has accepted the challenge of involving young people of today and transferring knowledge as well as new tools, self-confidence and motivation needed to them, encouraging a dialogue and – as an important contribution in the work for a more sustainable future – also incorporating their experiences and views in the Institute's development work of the Education for Sustainable Development (ESD).

Through the decades it is known that one of the target groups, that it is hardest to reach and engage in the work for sustainable development, is the upper secondary school students (teenagers). During the *Intergovernmental Conference on Environmental Education* in Tblisi in 1977, this was first announced. Ten years later a follow-up conference in Moscow confirmed that this still was the case. Younger children often participate in different types of environmental and awareness-raising projects for sustainable development, but the teenager group has not easily been caught or committed to these questions. That is one reason why this study could be of special interest and importance. By having a closer look at and investigate the interactions in, of and between the participants in – what seems to be – a successful program for young people about sustainable development, some new aspects might be revealed about the teenager group involvement and their experiences, insights and knowledge (Gough 1987; Östman 1995; Palmer 1998; Hansson 2000).

Since Young Masters Program is an ICT-mediated course where teenagers meet and interact in groups to learn more about sustainable development, I found it relevant to raise some questions about the learning process of the youth within the area of sustainability. The questions posed could open up dimensions of variation to be explored further. Therefore the Young Masters Program was chosen for my study.

1.2 Purpose

The purpose is to describe and analyse upper secondary school students' experiences of learning about sustainable development via the ICT-mediated university.

1.3 The Young Masters Program

Since 1999, the International Institute for Industrial Environmental Economics (IIIEE) at Lund University has been working with education of young students between 14 and 18 years old globally especially through the Young Masters Program (YMP) and the Global Environmental Youth Convention (GEYC). For this purpose a web-based course in preventive environmental strategies focusing on sustainable development has been developed. Almost 2000 upper secondary school students from all over the world have been educated since the beginning.

The participants receive the learning material through the internet and on CD, which is distributed to each student after registration. The CD contains photo and film presentations and detailed information about how to interact in virtual course rooms to optimise the learning process. The virtual course rooms are available through the learning management system, LUVIT (Lund University Virtual Interactive Tool) via the internet. LUVIT is used for the learning activities in the YMP course and facilitates the communication among all the participants. In this way, students and teachers from different parts of the world could meet virtually in Forum discussions (asynchronously), in Chat and communicate via quick messages (synchronously) or e-mail within the course site to exchange ideas about environmental, economic and social challenges and possible solutions, that present and future generation's decision-makers will have to handle.

The students participate together with their teachers or mentors, who tutor and facilitate for the students. Moreover, international tutors trained at the IIIEE i.e. through the Institute's web-based course "Introduction to Cleaner Production" (15 ECTS) are certified, and guide them via the internet through the learning process (see Appendix 1).

The course is supervised by the IIIEE and is free of charge. Moreover, for the optimal support of the upper secondary school students during the YMP course, it is favourable to have a team at each school consisting of as well teachers of different subjects working transdisciplinary as mentors facilitating for each delegation of participating students. The time needed for the students is three to five hours of study per week. English proficiency and computer literacy is a requirement, and for interaction online students need to have access to an internet connected computer.

There are two parts in the web-based, interactive distance-learning YMP course – *Introduction to the Environment* (i.e. *About Sustainability*) and *Preventive Environmental Strategies*. Part 1 of the YMP comprises six weeks and Part 2 eight week of studies (see Appendix 2).

The introductory part provides participants with basic knowledge of the environment and creates a common foundation for future learning about environmental strategies. The young masters learn about biodiversity, gaining an understanding of the complexity of ecosystems and their natural balance, and also about threats to the environment. They begin looking at their world from the perspective of sustainable development. By learning about Agenda 21, young masters join the international efforts in improving the plan ahead, building a better future, and be able to take a stand on environmental issues.

The second part is aimed at preventive environmental strategies. Here participants find out how all aspects of society are linked together, for example, taking into consideration the total lifecycle of a product in order to tackle environmental problems. They learn to go to the source and try to prevent pollution occurring from the start, and about design for the environment.

In some cases, an optional Part 3 can be added to the course. In the third part participants carry

out various project works to apply the learned concepts to real situations. The idea is that the students use their understanding of preventive environmental strategies to identify and study problems, for example, in some enterprise or organisation in their local community. Since a YMP course not necessarily have a conference as a follow-up, the third part is optional in the YMP courses.

IIIIEE issue a certificate for those having completed the web-based course of Young Masters Program.



Figure 1. Countries participating in GEYC 2000 = ■

The GEYC is divided into four parts and the result of the third part, which is a mandatory part to be presented during the fourth part, the face-to-face Convention of the GEYC, which is arranged every second year. Then the students, who have interacted over the internet during part 1 and 2 of the Young Masters Program, can meet and discuss their projects and experiences in person. The GEYC is a great opportunity for young students all over the world concerned about the environment to gather and share their experiences and results of their environmental projects and activities.

The first Convention, GEYC 2000, took place in Lund, Sweden. And already in 1999 the Institute inaugurated the international project GEYC 2000 with over 750 young people aged between 14 and 18 years old from all parts of the world. Through its alumni network and the main partner Caretakers of the Environment International and other organizations working internationally with youth and education contact was made with schools in 103 countries. Over a period of one year these students studied the Young Masters Program developed at the IIIIEE. This innovative program considered global environmental issues from a multidisciplinary perspective and illustrated the value of preventative action. Students worked with this material and on a number of projects within their schools. In June 2000 more than 550 of those students and their teachers and IIIIEE mentors came to Lund in Sweden for a five-day program. During this convention projects were presented; around 20 workshops were offered on a rotating basis, extending and deepening the 'Young Masters' program; decision

makers from industry and government, journalists and researchers came to meet – and to listen to – the citizens of tomorrow. (The map above shows the countries represented in the GEYC 2000).

Also for the GEYC 2002 in Turin, Italy, the Caretakers of the Environment International were the main-partner together with Consorzio per la Ricerca e l'Educazione Permanente (COREP) in Turin Politecnic, as Italy hosted the second GEYC in 2002. The main theme was Sustainable Mobility & ICT in the framework of Preventive Environmental Strategies. Economic development leads to higher demands for transport of goods and people, at the same time this threatens the environment and our general quality of life. Both in Europe and world-wide, suitable combinations of Information and Communication Technologies can indeed help to ensure safer, cleaner and more efficient transport. Moreover, ICT allows the use of "virtual" mobility, which may reduce the amount of unnecessary trips.

For the GEYC 2004 in Alexandria, Egypt, totally 791 participants in 30 countries registered for the 14 weeks web-based YMP course within the framework of the GEYC in 2004. The course was provided as a foundation for the project work and the convention in Alexandria. Approximately 50% met at the actual convention to present the project works in Knowledge Cafés under different sub-themes, i.e. Energy and Sustainable Development, Water Management, Sustainable Transports, Sustainable Schools and Waste Management.

The main-theme for the convention was "Environment – Peace – Culture". Main-partners were Bibliotheca Alexandrina, the Arab Academy for Science and Technology, the Egyptian Department of the Environment directly linked with the Ministry of the Environment, and the Swedish Institute in Alexandria. The patron of the Convention was Egypt's First Lady Mrs. Suzanne Mubarak (see www.iiiee.lu.se/geyc/2004/geyc2004.pdf).

The next GEYC will take place in Dubai, the United Arab Emirates, in November 2006. IIIIEE has signed a contract with Dubai Municipality for the organisation of GEYC 2006. The patron of the convention is H.H. Sheikh Maktoum Bin Rashed AlMaktoum, Vice President, Prime Minister of the U.A.E. and the ruler of Dubai. The main partner is Euro-Arab Cooperation Center with the administrative secretariat at Zayed University in Dubai. The YMP course starts in September 2005 with 1500 students.

GEYC 2008 is aiming for Beijing. The Chinese partner is the Center for Environmental Education and Communications (CEEC) of the State Environmental Protection Administration (SEPA) of the P. R. of China, which is working through its network of 20 000 Chinese Green Schools. China is rapidly expanding its network for environmental education, both nationally and globally. The YMPiC – Young Masters Program in China – has commenced alongside the Olympics 2008 to hold the GEYC as "the Green Olympics in Beijing" in 2008.

The YMPiC is a project where youth from all over the world are invited to participate in a web-based YMP course together with a large group of Chinese students from several provinces in China. During 2003, a total of 100 Chinese high school students from 15 Green Schools in 11 different provinces of China together with other 100 high school students from different countries participated in the IIIIEE pilot project "Towards GEYC in China – a pilot phase" (YMPiC 2003). The YMPiC 2004 run during spring semester 2004, and there were 300 Chinese with an equal number of non-Chinese upper secondary school students participating. In July 2004 the CEEC of SEPA arranged "The International Seminar on Green Schools in China and Teenager Forum on the Environment" in Taizou, Zhejiang province in China (see www.iiiee.lu.se/pdf/young_masters.pdf).

Part 1 and part 2 of the YMP is an important foundation with its education and dialogues online and necessary preparation ahead of each convention in the form of the GEYC.

2 Theory

This section presents a condensed description of how distance education has evolved over time, describes online learning in general, and outreach at the university via ICT-mediated education. To connect to earlier research on youth learning about the environment – with the three dimensions of sustainable development i.e. ecological, economic and social – is of a certain interest. That is also the experiences of teaching the ESD to the specific target group of teenagers nationally and globally. Some expressions are touched upon i.e. learning, teaching, education and knowledge building as well as sustainable development compared with sustainability in a university context.

2.1 ICT-mediated distance education – online learning

The field of distance education is rapidly evolving, and can today be described as diverse and complex. Distance education is not an old discipline. It has existed during some 150 years and evolved through five generations (Taylor, 2001). For a long period it was only an infrequent postal communication between teacher and student. The second generation was supported by radio and television, the third by synchronous teleconferencing via video, and the next followed by computer conferencing. It is not until the twenty-first century that visions of an educational semantic web with agents and intelligent, database-assisted learning is presented as an autonomous fifth generation. Still none of the previous ones have been displaced by later generations, which means that the diversity of viable systems of distance education offer opportunities to use combinations.

In the design of the online materials the “what” – the facts to teach – can be used according to the behaviourist strategies, the “how” – the processes – according to those of the cognitivist, and finally the constructivist strategies contribute to contextual learning and to the construction of the personal and real-life meaning. The learning objects could be used to promote flexibility and to meet the individual learners.

There are many definitions of online learning reflecting the diversity of the practice and associated technologies i.e. e-learning, Internet or web-based learning. This paper will use - according to the definition by Mohamed Ally (2002) - the term online learning as:

the use of the Internet to access learning materials; to interact with the content, instructor, and other learners, and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience.

Through technology (ICT) the learners receive the learning materials. They process the information, and then personalize and contextualize it. Online learning will develop diverse to respond to diverse learning cultures, styles, and motivations. Online learning allows participants to collapse time and space, but to engage the learner the learning material must be designed properly with the learning and the learners in focus. Online learning should have high authenticity, high interactivity, and high collaboration.

Anderson and Elloumi (2004) think that distance education could be seen as a discipline that subsumes the knowledge and practice of pedagogy, of psychology and sociology, of economics and business, of production and technology. With a holistic and transdisciplinary

approach such a discipline could develop the foundation for sustainability, which Wals and Jickling (2002) also underline.

Education is one of the few sustainable ways to equip people all around the world with skills and resources to combat poverty, war and environmental degradation. To make this accessible to humans globally, distance education perhaps is the most powerful means of extending this resource. Education – in its many forms – could provide more hopeful and new solutions towards a sustainable development. By developing distance education alternatives and making knowledge freely available more of the environmental and socio-economic problems and human suffering will be prevented (Anderson and Elloumi, 2004).

In Laurillard's research (2002) analysis on the complexity of coming to know and how to handle the ICT-mediated university are made. The aim of the teaching must be to make student learning possible. Teaching knowledge could be seen as a rhetorical activity seeking to persuade students to change the way they experience the world. Laurillard has termed this "mediated learning" after Vygotsky (1962). She also refers to the distinction made by Vygotsky between "spontaneous" concepts or experiential learning (direct knowledge), which is founded on concrete experiences and learned in everyday life, and "scientific" concepts (mediated knowledge) learned in classroom and developed through analytical procedures in a particular social context. Therefore the teaching should be designed so the learning is situated in the domain of the objective, and the activities must match this domain. As well as the teaching must consider both the experience of the world, and the reflection on the experience producing the representation intended. Academics want more to be learned than is available from experiencing the world. It is not enough with a first order experience. Every subject offers a different way of thinking. It is challenging to help students go beyond their experiences, to use and reflect upon the subject, and thereby change their perspectives and the way they experience the world. That is the reason why education must act at the secondary-order level of reflecting on experience (Laurillard, 2002).

With a student-centred way of thinking, it is of interest to find out what goes on when a student is learning online. There are according some independent learning activities that students must address, to give birth to successful learning. The aspects of learning – as an integrative whole – could be divided in many ways. To make the discussion about learning more manageable, five general aspects such as apprehending structure, integrating parts, acting on the world (of descriptions), using feedback, and reflecting on goals-action-feedback, could be meant to encompass the essence of the learning process. There is no logical order of the parts of the process. Each part is constituted in its relation to the other parts, given the integrative nature of the learning process, the inseparability of knowledge and action, and of process and outcome (Laurillard, 2002).

When research is co-operative rather than prescriptive, a phenomenographic approach using qualitative data producing descriptions is recommended by Marton and Ramsden (1988), to come to know more about how students learn. The co-operative style is more democratic, and gives full representation to the students' as well as the teachers' conceptions, and is prescriptive only at the level of how their dialogue should be conducted. It should improve quality of learning, since democracy aspires to prescribe a form of interaction between student and teacher, rather than action on the student. In this way it provides a structure for improvements. According to Laurillard (2002) the research offer new ways of generating teaching strategies from research outcomes.

In the spirit of a phenomenographic approach both educational research and teaching could be carried out, and towards defining how student and teacher or tutor should interact. The learning process should be constituted on the dialogue between student and teacher or tutor at

the level of descriptions of actions in the world, recognising the secondary order character of academic knowledge, and building on discursive, adaptive, interactive and reflective characteristics. Laurillard (2002) gets support in this thinking from Marton and Tsui (2004).

According to Tsui (2004) it is necessary that the teacher and the learner share a large common ground in relation to the learning object, if successful learning should occur. To understand what the implications for the practitioner could be in a phenomenographic context, the discourse is focused and defined as a process in which meanings are negotiated and clearly stated, and common grounds are established and widened. Any kind of discourse is a key motivation for people to talk, and more knowledge could enter the shared space of learning. Particularly when learners – engaged in group work bring their previous experience and their own knowledge of the world – construct texts and contributes to the collaborative construction of meaning among learners. Because of unequal power relationship between the teacher and the learner, certain assumptions may not be shared, and valuable contributions from the learner could be dismissed or not valued. The teacher and the tutor need to be sensitive and able to respond to signals by engaging in a negotiation of meaning with the learners.

De Boer and Collis (2005) do also emphasize the importance of more flexibility in course design and delivery to meet the needs of the learner through adaptability to different learning patterns and media combinations as well as to increase the flexibility of the online course beyond flexible information access. Relating to interpersonal flexibility, a student could work alone or in groups, if there is flexibility in planning, logistics and communications within the course management system. A change in pedagogy is often implied i.e. with more student-centred contributions that relate to the experiences of the individual students, which can be re-used by other students as learning resources, when interpersonal flexibility once is adapted. The means to support instructors to try new ideas and find a balance in the responding to the needs of their students should not only be given at the starting period of an innovation such as online learning. Flexibility ought to be scalable and manageable at the same time as it is offering different pedagogical approaches depending on the student's choice. Further research on and development of ICT-mediated learning is needed. Sunal and Sunal (2003) indicate that many studies on online courses could demonstrate possible approaches to successful implementation of pedagogical practices, but only are descriptive reports, which are practice-based helping others in the “how-to-do-it” stage of online course development. They mean that the instructional theory underlying the course design has to be articulated and used to focus course development and evaluation. To find out what can be done to develop valid best practice guidelines in designing and learning online, a well-structured research plan as a component of online course development seems to be essential.

2.2 Learning for Sustainable Development

Hansson (2004) has shown in her research that upper secondary school students have problems in reaching a holistic approach, since they have difficulties with involving economic and political aspects as well as temporal and spatial dimensions within the environmental area. The teenager students' formation of knowledge within this area is mainly built upon the subjects ecology, chemistry and human biology. When students in that age group think of sustainable development, they often think of the use of resources (recycling and saving) linked to our lifestyles i.e. for human needs. But the awareness about the importance of distribution of resources is not present. Hansson emphasize that the complexity of the environmental area, could more easily be understood by the students, if environmental issues were problemized and discussions about the connection between nature, culture and the

individual scientific parts were encouraged. A more open communication would be beneficial, and a resource thinking could overbridge borders between social sciences, humanities, and natural sciences.

By transforming knowledge for sustainable development to practice as an awareness raising activity, a competence and readiness for sustainable actions is prepared for individuals and in the society. Still the youth need meetings to test new contributions in a critical way to be able to lay a ground for responsibility and acting. Through more discussions the students could repair the lack of deductive steps, which are important epistemological aspects in the area of environmental education (Hansson, 2004).

The learning field of environmental knowledge in schools will require a development and restructuring of knowledge of sustainable development in concrete applications. That the norm-supporting structures for the especially dedicated individuals and forerunners in the local schools are essential to identify and use for the implementation of new education policy. Its driving force and nourishment come mainly from distant Agenda 21 management at international and national level (Wickenberg, 2004).

Wals and Jickling (2002) has been pointed out the chance to enhance the quality of the learning process in connection to the contextualization of “sustainability” as it offers an opportunity for reflection on the mission of universities and colleges. Because the concept sustainability is open to different interpretations and complex (involving ethical, moral, aesthetic, and spiritual issues as well as more conventional technical, economic, social and cultural ones), focusing on it provides new ways of thinking. This brings academics into whole new pedagogical worlds – experiential, epistemic, and systemic – and whole new worlds of learning, and researching. As underlined also by Hansson (2000) educators with concerns about the future of the earth, and about all the aspects of human–society–nature relationships we should seek more, not less diversity of thought. By using less exclusive language to describe our educational activities and ourselves this will best be achieved. Sustainability talk brings together different actors in society searching for a common language to discuss environmental issues. The process is about seeking rather than setting standards for education for sustainable development. Above all this means creation of space – space for alternative paths of development. When different ways of experiencing the world meet, dissonance is created and “learning on the edge” is likely to take place. The fact that the concept ‘sustainability’ is unclear provides colleges and universities an opportunity to confront their core values, well-established pedagogies, students’ learning, and relationship with the whole community.

2.3 Online learning for sustainable development

Malmberg and Svingby (2004) have shown in their research of online learning for sustainable development in a computer-supported course for teacher students, that the social dimension in the ESD is highlighted. The students’ contributions are important resources to every participant’s learning as well as to the group is an important resource for learning. In students’ dialogues in the ESD every answer is meant for somebody. To live means – especially to young people – to ask questions and to give feedback i.e. to participate in the open-ended dialogue. It seems to be relevant to increase students’ abilities to participate in social issues and as knowledge builders. Both the knowledge building, in which participation and learning activities is replacing knowledge possession, the participation focus on the social aspects of knowledge in the ESD. By focusing on the group and noting the importance of words that capture newly constructed knowledge instead of the learning on individual minds –

collaborative knowledge building is developed, since the ideas of value to a community continually improves and will be greater than the sum of the individual contributions. Knowledge building takes place in the meaning that the individual participant in online learning for sustainable development gets access to resources, which she might not have found on her own.

Under the umbrella of social constructivism there is in a way a support for the findings of Malmberg and Svingby presented above, since Marton and Booth (1997) have found that the learning situation is the driving force of learning through which the learner comes to experience something, which she has not focally been aware of before. So, that is what it takes to learn – to be capable to change a way of experiencing something. But to differ in richness, that learning needs a relevant structure and situational appropriateness. Marton and Booth (1997) also mean that through a shift from understanding only the anatomy of individual awareness to a collective awareness, as has earlier been called “collective mind”, the varying ways of experiencing a certain phenomenon and the specific meaning it has to us, observing diverse awarenesses (and in the prolonging of this – a variation in learning) could be seen as the most fundamental aspect of learning.

3 Research Design

Since the purpose with my study is to describe and analyse upper secondary school students' experiences of learning about sustainable development via the ICT-mediated university, I found it appropriate to gather data through an online evaluation questionnaire. The questionnaire was addressed to upper secondary school students to find out what the norm for their thinking about the learning process is. The questionnaire had both closed and opened questions. The purpose of using this type of questionnaire for my data collection was that I through the open questions, wished to not lead the respondents thoughts in a certain direction, but invite the participants to explain with their own words. The open questions are suitable, when researching an area that is less known by the researcher (Bryman, 2002). The online questioning is also a less expensive method, which was important since my intention was to reach as many participants as possible around the world. The respondents could choose to answer when they had time, and it could be easier to administrate the records. Since there was no opportunity for me to meet the "young masters" face-to-face, it was a great advantage to have an online evaluation (Appendix 3), that could be easily accessed by the participating delegations that wanted to write their answers to the questionnaire.

To use of an online evaluation questionnaire with both closed and opened questions, could bear certain limitations. A combination of closed and open questions was used in my questionnaire. One reason for this was to get a maximum of information and data without making the questionnaire to tiresome for the respondents. The open questions demand more engagement and time from the respondents. On the other hand the open questions might give unexpected reactions and answers, which are of great value for the researcher. At the same time the analysis of the content in the answers could also be time-consuming since it is hard to sort out accurate themes i.e. post-coding, once the evaluation has been carried out (Bryman, 2002).

The questionnaire format to collect data is also preferable as it often is a quicker and cheaper method to administrate. Some shortcomings could be that it is not possible to give additional information or follow-up questions to the respondent, but it is also beneficial that the respondent does not need to be polite or experience dependency, which could be the case in an interview situation. Built in the system with online contact is the uncertainty according to who the real respondent is, since the person is more or less an anonymous individual or a group of people answering the online questionnaire.

Answers from 221 students who participated in the GEYC 2004 from 19 countries have been selected for this study. The respondents participated in Part 1 and Part 2 of the YMP within the GEYC 2004. Many are representatives for their whole delegation, which means that sometimes one answer i.e. one voice represents the answers of 3-5 participants from the same delegation. The answering frequency therefore is much higher than indicated by the number 221. I value it to cover the opinions of 70-80% of the young masters. In total there was close to 700 teenagers participating. The amount of data collected, I consider being representative and good enough for the purpose, which is to get knowledge about how the youth experienced the Young Masters online course. The focus is upon how and what the teenagers have learned, and issues that they emphasize the importance of within the context of education for sustainable development.

The analysis has to a certain extent been carried out with a qualitative approach, which for the data analysis is inspired by the phenomenographic approach, and demands an open attitude for the domain of the phenomenon of interest. The material could in that case be seen as a "pool of meanings" from which patterns might be extracted (Booth, 1993).

Ethical considerations were taken in connection to the evaluation, and each answering participant got the option to agree or disagree to the research being conducted on the answers given by them in the online questionnaire. See the following statement for their individual answers given in the questionnaire:

I accept that anonymous statistics (e.g. progression, time-on-line, comments, interaction with other students, etc.) may be compiled for administrative and research purposes to improve future web-based courses of this type.

The participating students individually confirmed that the use of their answers did not bother them. After their approval the answers could be analyzed in this study.

The selected questions from the questionnaire online, that I have chosen to analyze, are presented below and give an overview of the following parts:

I. QUESTIONS ABOUT YOU AS A STUDENT

- 1.1 How old are you?
- 1.2 Are you a female or a male student?
- 1.4 How many hours a week have you worked in the course in total?
- 1.5 How many hours a week have you as a student worked with your delegation locally with "Learning Activities" and assignment preparations?
- 1.6 How many hours a week have you, as a student, worked on-line connected via Internet reading, writing and commenting presentations and assignments in the course?
- 1.7 How many hours a week have you used the CD to get information and take part of the presentation?
- 1.10 What is your overall impression of support and feedback in the GEYC course?

II. QUESTIONS ABOUT YOUR OWN LEARNING

- 1.11 WHAT was the most important thing you learned on this course?
- 1.11.2 HOW did you learn about this specific thing?
- 1.13 WHO would you like to have more feedback from?
- 1.13.1 Describe advantages with an e-learning course about sustainability?
- 1.13.2 Are there any disadvantages with an e-learning course?

IV. LEARNING VIA THE CD

- 3.1 How many times have you used the CD?

V. LEARNING VIA INTERNET

- 4.1 How many times have you been connected to the Young Masters web-based course?
Please, indicate how you rate...
- 4.2.6 Feedback from IIIIEE staff in the FORUM Discussions.
- 4.2.7 Feedback from other students in the FORUM Discussions.

Results are presented as frequency distributions in tables and diagrams for the questions where alternatives were provided. By looking at the result, some general trends could be discovered and brought to the discussion.

Also open questions were used in the web-based questionnaire. By reading all their answers and focus on the learning process and their selection of the content in the course, special themes could be found. A selection was carried out to get an idea of how the students conceptualise the object of learning. Keywords recognised in the students' answers are the base for categorising into different themes.

4 Result

There are some differences in the practical realisation of the group learning procedures locally. These are shown under the “Learning logistics”. Since this study has chosen as a starting point to view from the eye of the learner; the results presented under the headings “What Young Masters learn” and “How Young Masters learn” focus on the learner’s experience on learning. That is why quotations from the teenagers’ answers of the questionnaire are selected to give a appropriate image of what the youth experience as their learning process and learning outcome of the YMP and within the ESD.

4.1 Learning logistics

Under this paragraph the focus is on: Who are the Young Masters? How do they experience that they organize themselves to carry out the learning activities and to interact in the online course? How much time do they use for different learning activities in the Young Masters Program?

4.1.1 Attribute Data

The students have been collaborating and working together in small groups locally, so called delegations, consisting of 3-5 students led by a teacher or a mentor from the same school. Answers from 221 students who participated in the GEYC 2004 from 19 countries are presented in this study. Each answer in this questionnaire is representing at least one student’s voice, sometimes it is the common sense opinion of the whole delegation i.e. 3-5 students.

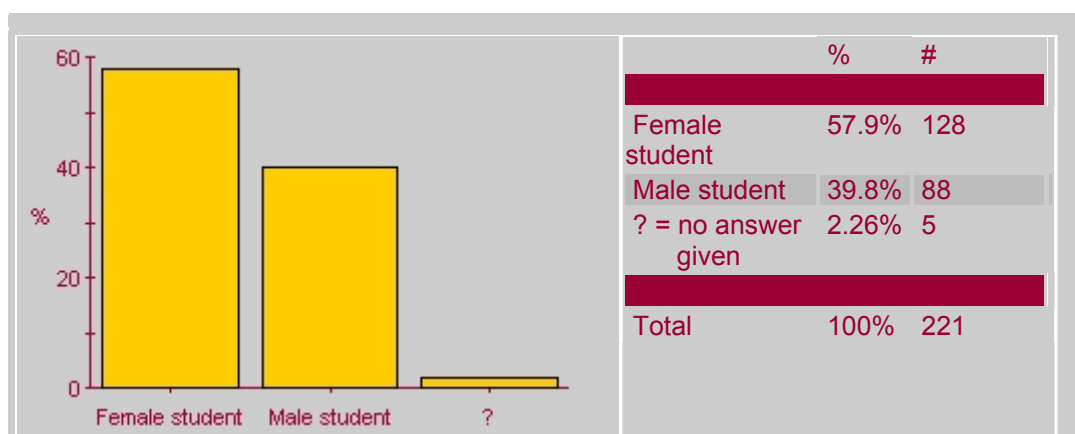


Diagram 1. Are you a Female student or a Male student...?

Among the participants that answered this questionnaire 58% are female students (i.e.128 individuals), 40% are male students, and 5 persons did not answer the question about their gender (Diagram 1). More girls than boys did contribute with answers to the evaluation, and the girls have been formulating and sending the answers to this questionnaire.

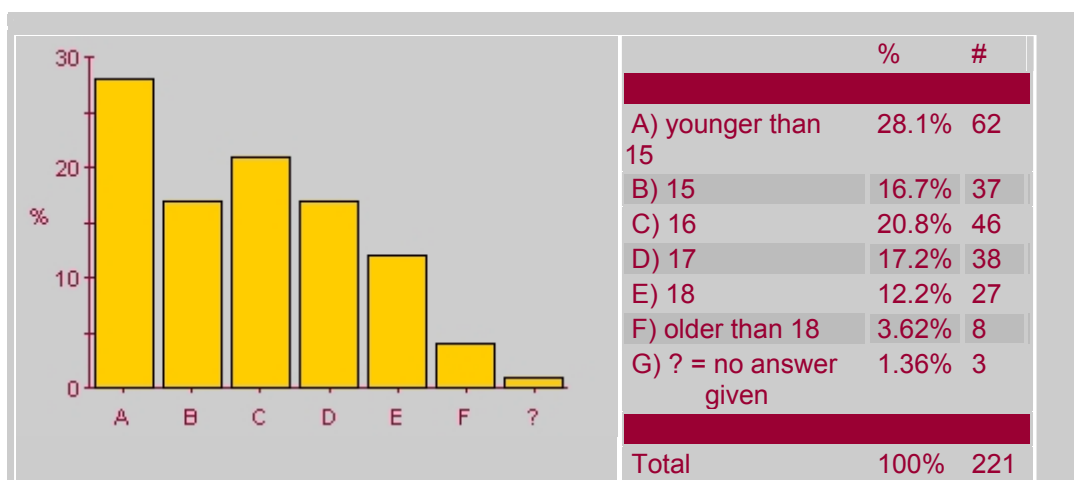


Diagram 2. How old are you?

Among the participants 28% were younger than 15 years, and only 16% were 18 years old or older (Diagram 2). A majority of the participants are very young. More than 65% are 16 years old or younger than 16 years. Only a few students are representatives for the older teenagers.

To sum up the diagrams 1 – 2 it could be concluded that the majority of the Young Masters, who did contribute to this evaluation, are younger female teenage students. They seem to give voices to the opinion of their own whole delegation.

4.1.2 Time Disposal

The time that the students have estimated that they used for various learning activities within the framework of the Young Masters Program, is presented in diagrams and tables below. It should be of great interest for everyone involved in the ESD, to know how much time the youth spend in the learning environment of the YMP, to achieve an understanding of the importance and priority the teenagers give to this form of ESD online.

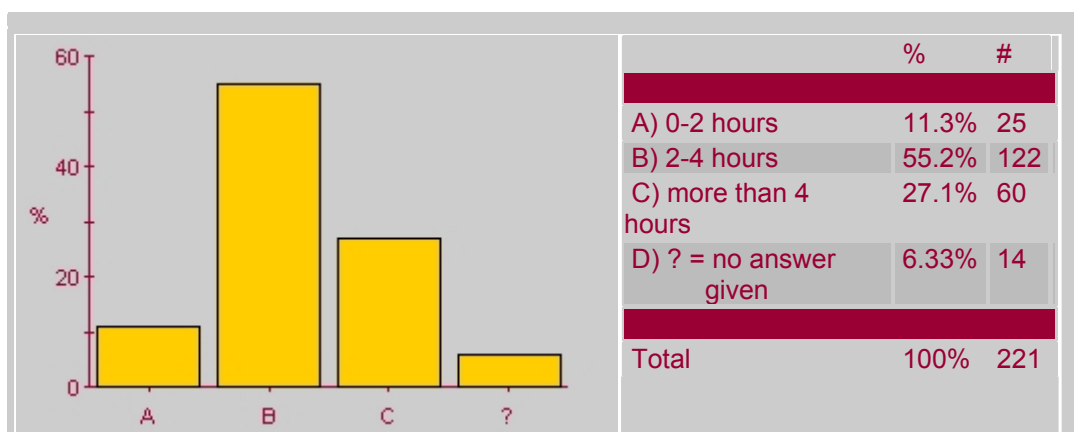


Diagram 3. How many hours a week have you worked in the course in total?

Most of the students (55%) were learning within the context of the YMP course during 2-4 hours each week during the in total 14 weeks long YMP during the spring semester 2004 according to diagram 3. Some students (27%) estimated the time they used to be even more than 4 hours per week, and it is not known how much the upper limit could be. The result

indicates that the complete YMP course run during 14 weeks ahead of the GEYC 2004, could take around 60 hours per student totally (i.e. nearly 4 hours per student and week). Apart from this, 14 students did for un-known reasons not answer this question.

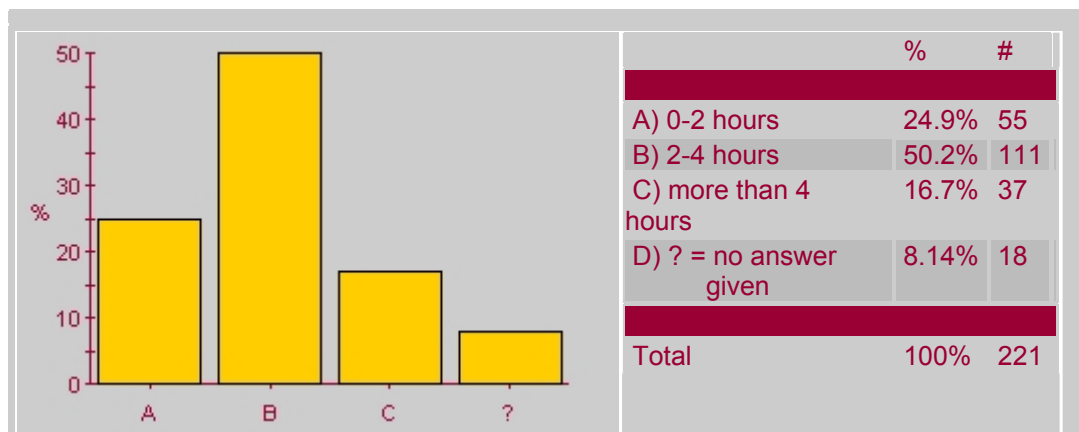


Diagram 4. How many hours a week have you as a student worked with your delegation locally with "Learning Activities" and assignment preparations?

In total 25% of the students worked up to 2 hours per week, 50% of the students worked 2-4 hours per week, and 17% of the students worked more than 4 hours per week with learning activities and assignment preparations within their delegation locally.

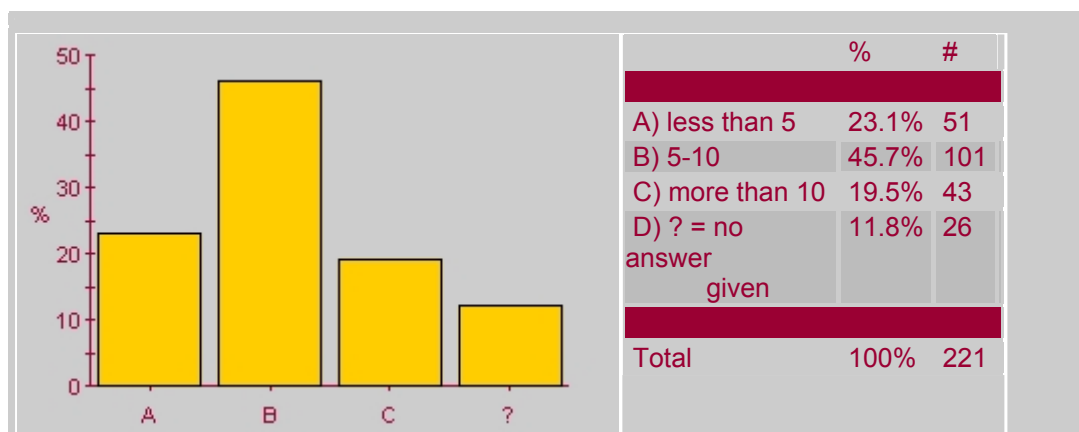


Diagram 5. How many times have you been connected to the Young Masters web-based course?

For learning activities via the Internet nearly 50% of the students were connected to the Young Masters web-based course 5-10 times, and 20% used this opportunity more than 10 times according to diagram 5. Some dropped in less than 5 times in the course room online. They might have been visiting the virtual course rooms and the Forum Discussions many more times, but then perhaps in company with some other student from the same delegation that logged in to the YMP course online. The main purpose for go online was to write the ten assignments in part 1 and part 2, and to read and react upon the other delegation contributions in the Forum Discussions.

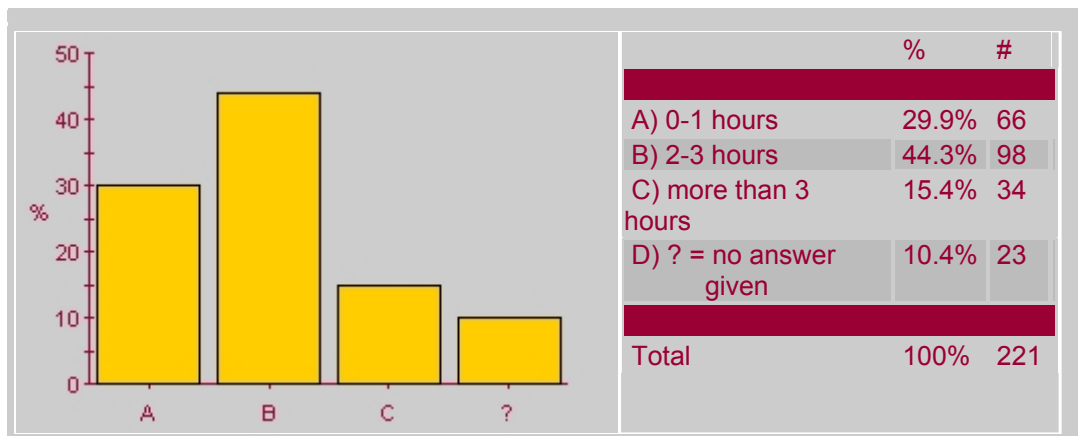


Diagram 6. How many hours a week have you, as a student, worked online connected via Internet reading, writing and commenting presentations and assignments in the course?

Diagram 6 shows that 74% of the students were online up to 3 hours per week connected via the Internet reading, writing and commenting presentations and assignments in the course. Or you could say that 30% of the students were online for the same purpose up to 14 hours, and respectively 44% were online 28-42 hours in total during the whole YMP course. 15% were online in the course more than 42 hours. 23 students (10%) did not answer this question.

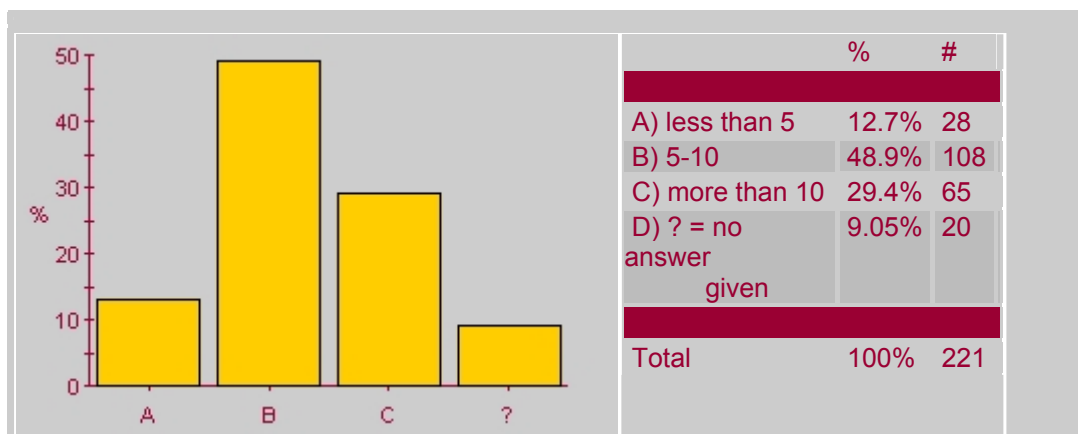


Diagram 7. How many times have you used the CD?

For learning via the CD about the content in the YMP course 50% of the students used the CD 5-10 times, and 29% used the CD more than 10 times according to diagram 7.

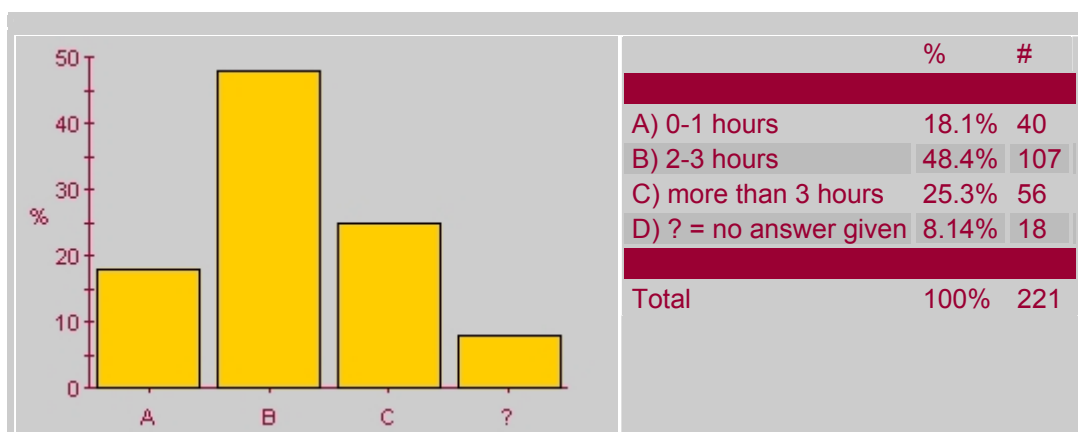


Diagram 8. How many hours a week have you used the CD to get information and take part of the

presentations?

Diagram 8 point out that nearly half the students used the CD 2-3 hours per week to get information and take part of the presentations in the course, and 25% used it more than 3 hours per week for the same purpose. Nearly 20% of the students did use the CD less than an hour. Or you could say that 18% of the students worked with CD up to 14 hours, 48% worked with the CD 28-42 hours, and 25% worked with the CD more than 42 hours during the whole YMP course. While 8% did not answer the question about how much time they used the CD.

To sum up the diagrams 3 – 8 and how the time was disposed for the various ways to study the YMP, it could be concluded that 50% worked in total 60 hours, and 50% worked within their delegation locally 28-42 hours, and nearly 50% worked online 28-42 hours, and finally also nearly 50% considered that they worked with the CD 28-42 hours in the YMP course.

It is interesting to see that diagram 6 shows that 30% are connected up to 1 hour per week to take part in the YMP online, but only 15% stay longer than 3 hours per week. It is almost the opposite when it comes to the time for using the CD according to diagram 8, which shows that more than 25% of the students take part of the presentations and the information on the CD during more than 3 hours per week, but less than 20% use the CD 0-1 hour per week.

4.1.3 Feedback and Forum Discussion

To get an idea of how the students valued the feedback on their assignments presented in the forum discussions and the learning activity taking place in connection to that in their “virtual course rooms”, which the forum discussions could be named, some questions were posed about these matters. Some diagrams from the evaluation of the YMP within the GEYC 2004 exemplify how the students found the learning activities, and are shown and commented below.

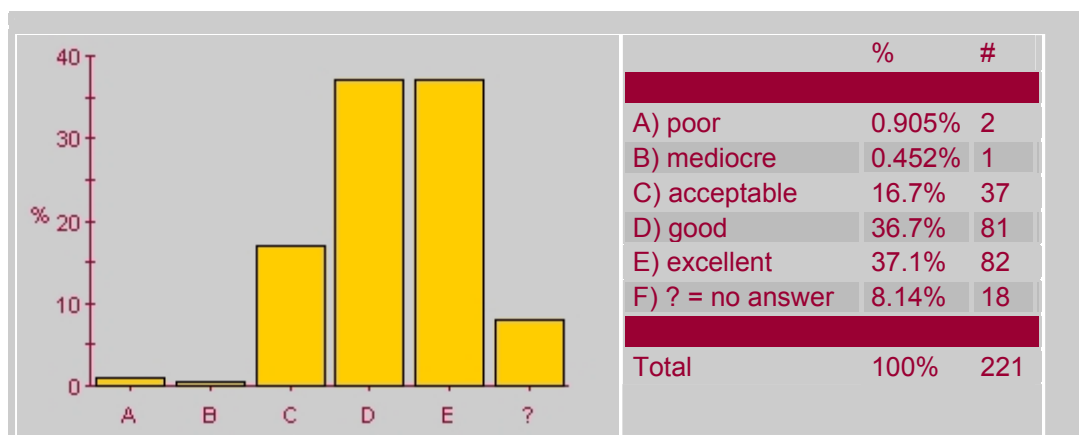


Diagram 9. What is your overall impression of support and feedback in the YMP course?

Almost all the participants were very satisfied with the support and the feedback in the YMP course in general (Diagram 9). 82 students (37%) found it excellent and 81 students (37%) said it was good. 2 students (1%) found it poor. 18 students (8%) did not answer this question.

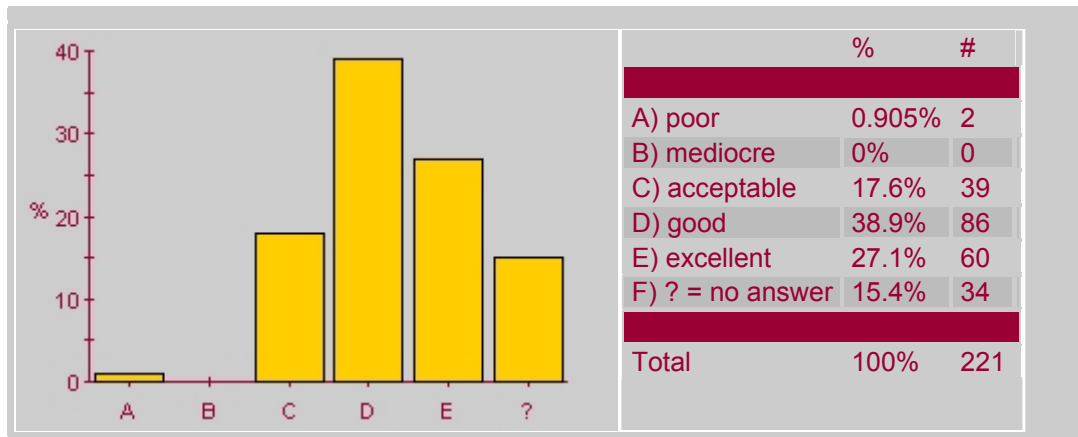


Diagram 10. How do you rate the feedback from IIIEE staff in the FORUM Discussions?

The feedback from IIIEE staff in the forum discussions was rated as good by 86 students or excellent by 60 of the participating students (these two alternatives taken together represent 66% of the answers). This feedback consisted of summarized tutorial comments on the assignments of the group in discussion forum. Guidance on how the participating students in the same “virtual course room” as a team could develop the discussion further was given.

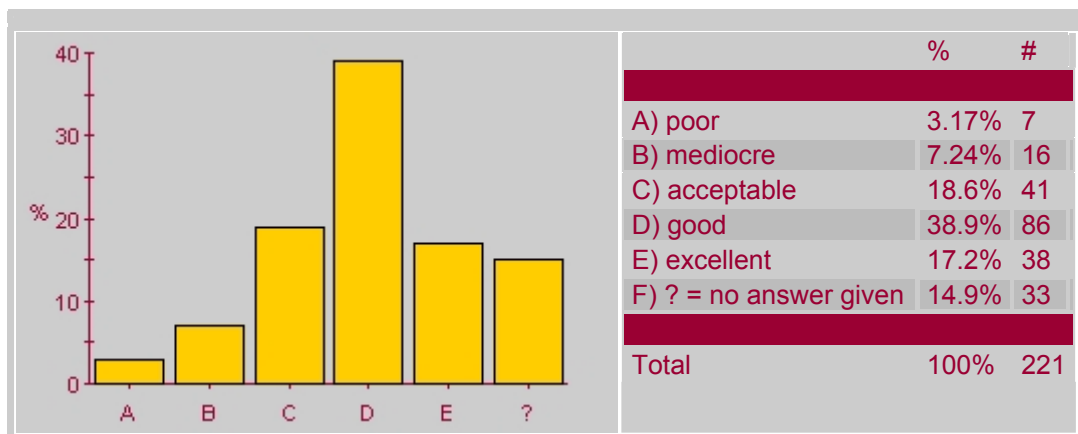


Diagram 11. How do you rate the feedback from other students in the FORUM Discussions?

19% of the students expressed that the feedback was good enough, while 39% were satisfied with, and 17% found the feedback they got from their fellow students in the forum discussions to be excellent according to Diagram 11. Still 7 students (3%) thought it was poor and 16 students considered it to be mediocre. More than 58% rated the forum discussions with the other students within their virtual course room as good or excellent.

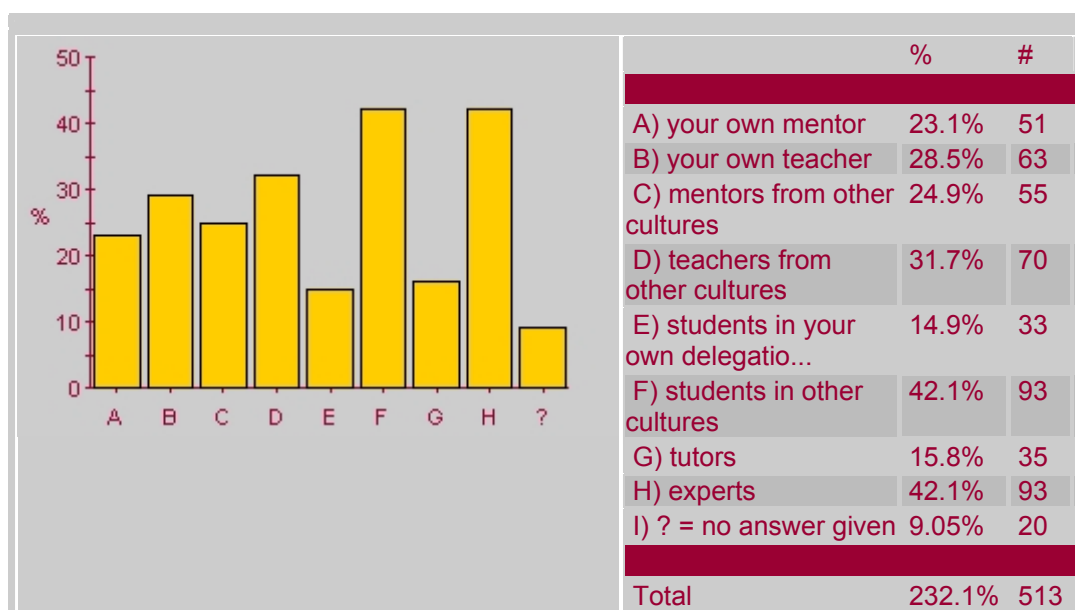


Diagram 12. WHO would you like to have more feedback from?

42% which corresponds to 93 high school students in each case – expressed their wish to have more feedback from experts and/or other high school students as well as from teachers in other cultures. As shown in Diagram 12, the high school students could give priority to more than one alternative. Many high school students wanted to have more feedback also from their own teacher (expressed by 63 students) or mentor (51 students).

To sum up the diagrams 9 – 12 and the feedback given, a trend could be recognized showing that more feedback from all involved are required. Even though 74% think the overall impression of support and feedback in the YMP course is good or even excellent, it seems to be a potential for developing more interaction in the forum discussions and to increase the virtual exchange through more meetings and varied learning activities online.

4.2 What Young Masters learn

The result of the open-ended answers in the evaluation questionnaire online illuminates the students' learning process. The result is based on the analysis of answers of what the students considered was the most important thing they learned in the Young Masters distance education program. The students' greatest learning experiences in the YMP are clarified by the following themes:

The three dimensions of the ESD

To learn about sustainable development was new for me. I agree that it's not only an economical or ecological issue but mainly social. Agenda 21 has quite a lot to do with us who live on the shore of two endangered lakes.

The only way we can stop the harm we are doing to do environment is acting locally and PREVENT the problems before they arise by identifying the causes and directing our actions to reduce the impact. If each one of us acts locally we can create a global effort that will lead us to a true sustainable development.

Prevention is better than cure", but this time regarding environment! -"We shouldn't bite the hand that feeds us", which is nature. --> conclusion:
We should apply what we have learnt about social interaction and SD.

Teamwork and Collaboration

We learned from it the actual meaning of Team work

You can learn in any time in any place with asynchronous interaction with group collaboration with new educational approaches with an Integration of computers

Awareness Challenges Lifestyles

The most important thing I have learned was measures of how to save energy and how to make our life comfortable without using more materials.

The most important thing I learnt on this course is about the preventive environmental strategies, ...because it is important that we understand how we can develop solutions to the environmental problems to improve our standard of living.

That everyone has his own role to play in the P.E.S. and that role is valuable.

I suffer from the lack of respect from our guests, tourists, who come to us, to cure themselves and enjoy a kind of recreation. We try to do our best to provide them with the most convenient circumstances, but they are in most of the cases very insensitive. From the course I got a kind of encouragement that we have to avoid this sort of behaviour. We have to be searchers and not consumers. The Dependence contra Freedom part was extraordinary interesting.

Finally, when it comes to what they learned within the YMP, these are the three areas the high school students have enlightened as the most pivotal, most beneficial and interesting.

4.2 How Young Masters learn

The interpretation of the results, based on the open-ended answers in the questionnaire online, elucidate also how the student learned about sustainability. Of course, the students might experience many ways of how to learn, but what they did initially answer is shown below. What the students first did focus upon, concerning how their learning process took place – what they answered – has been sorted out thematically under the following five headings:

Feedback for learning

The exchange through discussions contributes to achieve deepened knowledge, which adds raised awareness about the issue of sustainable development. Almost all the participants were very satisfied with the support and the feedback in the YMP course in general. (See more about how feedback is valued by the students in the diagrams 9-13 under 4.1 Learning logistics). The students say that they need to know, if the way they learned is fruitful i.e. the students want a confirmation of the exactness of their learning process. The students commented why in the following way:

Most of my current knowledge has come from this course and related discussions with fellow delegates relating to tasks within this course.

I have learned from the feedback that has been provided.

Quick feedback from tutors, ...and interesting people online.

Because, whenever I wanted to ask about anything in the course, I found some body to answer me. I felt that to contact with any body from the organisers was so easy as if they are with me in the same country supporting me & helping me in any time.

I learnt about this specific thing through a number of different medians. Firstly, the presentations were extremely helpful in giving an introduction and an insight into each topic. This was further developed through discussions within the delegation and finally through the forum discussions with the other delegations.

Learning through each other and through others problem

Many students tell that it is of importance raising the awareness of sustainable development. By reflecting, rethinking and interaction the students say that they learn to think and work for the implementation of sustainability. Within the framework of the YMP many students express that they explored new ways of communication to enhance their learning process. The students indicate that they deepened their knowledge via the global meetings, which caught their attention, and made them more committed to the task.

The first import thing is how to learn from other and others learn from you; second thing is to becoming aware of my environmental problems, reading the mind and thoughts of other people is very important; to know each others' problems and trying to solve it – if possible...

We worked in a collaborative form, by approving ideas, sometimes by doing brainstorm. We worked in a good form and I think that all learned correctly.

By connecting my friends and sharing their opinion and trying to prevent pollution or any problem by having a good word from us all.

...well, interacting with different people from different social classes and different nationalities from the course I might say.

I always find that the problem comes from the wrong way of thinking, which leads to actions

harming the environment, and the solutions are always depending on changing the way we think in order to change the way we act.

Teamwork with pioneering teachers and facilitating mentors

The presence of an innovative teacher is of a great significance, the students say. The mentor also has an important role as facilitator. Often those within a delegation develop a well functioning teamwork. Still it seems as many of the students themselves take a lot of responsibility for their delegation and the online studies in the YMP course.

By researching the Internet and collaborating study time with some of my teachers.

With students: we met every Monday to discuss what we have learned this week and to see what the assignment in this week want us to talk about, so we ask our parents and some teachers to get from them some information, so that we can do the assignment. Then we go to our mentor and ask him to give us some comments and feedback of what we have done so that he can help us more and more. At the end we go to our teacher and ask her also for comments and feedback for every thing we wrote and see if what we wrote is right or wrong, then I go to the set of the course and write the assignment and send the assignment.

We used to meet each other at my school each week and sometimes 2 or 3 days in the week and we started to talk about what each one of us have done with our assignments and our delegations and every one of us asks the teacher if there is same thing difficult facing us, then we started talking and getting information from each other then if our teacher wants to tell us any thing concerning the course we listened to here and also our mentor helps us with our delegations .if there is any activities we are going to do with our teacher and our mentor we used to be ready with every thing before doing it.

We worked as one team each one of us has a task to do and I'll take the final presentation as example: every one of us was having a task to do, my task was to take pictures of the fish market, two of the students collected the data about our topic, I and my teacher worked on computer to complete the presentation and prepare it.

We have not had support from a specific teacher. In fact we have asked different opinions depending on the specific topics we were working on. Our mentor has been a key element in the communication between the organisers and the delegation, she has also set the guidelines for working together and solved our doubts. She also checked the activities we did and made some suggestions. Working with the other students in the delegation has allowed us to have better and more complete ideas, I think we have worked really good together. Unfortunately, not all of the members of the delegation finished the course.

We used to have regular meetings with our mentor each Thursday and Sunday in the break time. We used to discuss the assignment together and our mentor used to explain the assignments for us in a simple way which we use to understand it quickly, and during the holiday time we use to meet at the school 3 times a week to discuss and to make our project and presentation.

We would meet up every week and tackle any assignments needed to get done. Then spend time discussing future assignments and researching. Furthermore, we would assign work to each other to do during our free time. Our teacher and mentor would be there is we needed any help in certain matters such as organising trips or interviews.

Through remote Expertise

The ICT-mediated contacts catalyse the learning process and the education for sustainable development. The variety of interaction between the young masters seems to be an overall new learning perspective and – in the context of learning at university – particularly remarkable. This is a more informative way of learning. By reading the texts written by

experts new knowledge is made available. Links can offer studies on more advanced levels.

It is easier to know different perspectives and new ideas from people all over the world. You can see how some solutions that have been applied somewhere else could also work in your local scenario. People can share their knowledge and expertise with the youth, so that we can grow up with a different attitude toward sustainability.

Although this is not a specific thing, I think that reading all the presentations of the environmental problems, and the different explanations of the PES, showed that we are caring about our world, and that this new generation will try to do it.

The power point presentations were very helpful indeed, and they taught me a great deal about issues I had never considered which in my opinion is a great personal bonus, as well as a step forward in the right direction to a better understanding of the discussed topics.

To conclude the students' answers display that they design new ways for their learning process. The students expressions show, that they take a lot of responsibility in order to optimise their learning activities and they actively conduct the individual learning process. Teachers, mentors and experts are useful to the students, but more seen as people to consult when problems occur and when needed as facilitators.

4.4 Online learning for sustainability

From the result of the questions about the experiences the youth had in the online YMP course about sustainability, many advantages as well as some disadvantages could be recognized. The youth reflect, contribute with their opinions and share their experiences. These have been thematically ordered, and some selected quotations are representing the students' standings. Under the headings Advantages and Disadvantages respectively, the themes are shown.

4.4.1 Advantages

Among the answers the increased opportunities to access new meaningful and adequate knowledge, and utilize and develop many new ways of online communication with dialogues, stimulating knowledge building processes through enriching contacts, exchange and networking, the independency of traditional teaching and learning forms – as being the only form – are emphasized among the students. According to my findings the most interesting themes are as listed below:

Accessible Knowledge – a way to come to know more

Being related to computer, connect the net and getting better knowledge and information

The information is updated, new, and most important available every week.

Complete awareness is the most wonderful advantage.

I learned about the sustainable development and I got to learn more advanced things for my age in a simple way.

The advantages are that this way of learning is faster and easier because you see pictures and explanation from all over the world

Global Citizenship – talk the walk globally

People all round the globe came to know about sustainability.

It can have a global diffusion and it can take people from around the world to work together in a global issue.

It is good because we can discuss the important problems with people all over the world and solve it together hand by hand

Its something that you give the best effort so you learn and you go further than the people in your country so your mind start to create new ideas.

The excitement I think and the new subject it arises and the global corporation

I'd like to continue with environment and I'd like to learn more, especially about how to educate others in poor or rich countries.

Culture meets culture

It leaves more places to our mind to work with other cultures and to interact with teachers, mentors and students all over the world. It is a better way to learn, and to learn how to learn.

Sharing ideas with people from other countries with different cultures about sustainability and applying P.E.S and with all countries involved in this course the whole world would be able to save our environment in the future.

It helps you to interact with students from all around the world and increases your general knowledge about their cultures.

I collect the whole world ideas and I show them mine.

We shared ideas and solutions about the problems of our country.

Learning a Globalization tool

I can learn about what is going on in the world it is new for me.

We see the things in applied way.

I don't think that there are any disadvantages with an e-learning course as we can cooperate and work together through the internet, communicate through emails and chat.

An e-learning course is a clear example that supports sustainability...
...because it is accessible to generations that in a future can help the care of the environment.

We know about state-of-the-art of strategies and technologies that help us to "sustain" sustainability. It also gives us a wider perspective of the impacts of ignoring sustainability.

I learned how to solve some problems facing me, I learned a lot about my environment and I get some new information about it from the CD that I didn't know before. This course improved my English well and I knew some new friends and how to deal with them. Me and my friends used to exchange some information with each other.

Flexibility

An e-learning course is incredibly useful as it gives us a great deal of flexibility with our work. Instead of having strict restrictions, we are able to make our own time to work online. I think that the ability to work at home, or at other students' houses has been very advantageous to us, as we are able to work in a comfortable and relaxed atmosphere.

There is a lot of advantages with e-learning for SD. It does not take a lot of time, we get away from the teachers and their doings... it is a new way of education.

In my opinion it is more convenient than regular education especially for children whose parents don't believe in teaching in schools.

It is more inviting... you go at your own pace in your own convenience

You can learn in any time in any place with asynchronous interaction with group collaboration and new educational approaches with integration of computers.

Breaking the wall of distance and time are the most advantages with an e-learning course.

The theme *Accessible Knowledge – a way to come to know more* illustrate the importance the students give to the enlarged chances to access new adequate knowledge via online studies. The theme *Global Citizenship– talk the walk globally* builds on the meaning of the students that online meetings in global dialogues to find common solutions to the big global problems, is strengthened, when also the social dimension of SD is a part of the learning process. In the theme *Cultures meet Cultures* the students show that the positive cultural diversity experienced in the contacts between students in nations worldwide, brings in in-depth knowledge about your own culture and inter-cultural differences. Learning about the complexity of a culture, also provides a deeper understanding, and nationally tailored solutions and ideas are demanded according to the participating students. Through the YMP course online the students experience that they achieve a tool to develop new skills, widen their perspectives, reinforce confidence and support commitment to learn globally about sustainability via ICT. These insights from the participants are covered by the theme *Learning a Globalization tool*. In terms of *Flexibility* the students highlight the advantages with new approaches of didactics, interaction and collaboration, ICT-pedagogies, alternative teaching methods, and freedom of choice concerning content, pace, place and time.

4.4.2 Disadvantages

The frequency of the answers containing the word “no” on the question, if there are any disadvantages with an e-learning course, is quite overwhelming. Still a few problems in the framework of the online learning are mentioned. The recognized areas where troubles, according to some of the YMP participants might occur are pigeonholed as follows:

Content Admittance & Efficiency

The disadvantage is that e-learning is not available for everyone and sometimes could be less effective than other forms of learning

Material incompatibility

The only disadvantage is that sometimes communication may not be as effective as it is personally.

Quality and Control

There is no physical control on whether the people work or not because there is more freedom.

There is no way to really assess whether the course is being taken seriously.

Unsuitable for Certain Types of Training. Unsuitable for Certain Types of Learners.

Reliance of the quality of the content.

Time for Interaction and Communication

Problems if you have dial-up! Not much people discuss and give feedback etc. Being global means time zone problems. Communication among different groups is somewhat slow.

The only one that can be is that there is less person to person interaction face to face.

Communicating with people in direct is way much different than talking to them from distant. But still e-Learning is a great teaching and learning method.

It's not very easy to access to the internet. It needs lots of time. HOURS and HOURS!!!

Technology dependency

Perhaps only some difficulties that I experienced due to heavy traffic and problems with the Java machine

Sometimes the web site doesn't load and the forum discussions don't appear but as a whole it's a great idea to e-learn

At the end of the day the students do not consider the disadvantages to overshadow the advantages in this online course. To summarize the advantages and the disadvantages with online learning for sustainability pointed out by the students in this specific course, it is obvious in the result that the participants regard the online learning as very innovative and empowering.

The positive outcome of the online learning for sustainability in the YMP course, also seems from the result to be, that the awareness, the tools for knowledge building, the radical development of the learning processes, and the global dissemination of the concept of preventive environmental strategies in the context of sustainability, has increased in a large scale and has a great potential for future development within the framework of the ESD online.

5 Discussion

5.1 Research Design

The design of this study is mainly based on the online evaluation questionnaire of the YMP course online ahead of the GEYC 2004. The result mirrors mainly the outcome of how the students learned i.e. the students' experienced learning of the course content via interaction and learning activities and skills developed in connection to this. Accordingly, the data for the learning logistics and how the students experienced their learning process – as the “result” or the “product of education” for learning about sustainable development online – is stronger than the data for course content evaluation in this study, since it is not a traditional course. The emphasis of this study is on the description and analysis of upper secondary school students' experiences of how they are learning for sustainable development via the ICT-mediated university.

According to Bryman (2002), there is criticism of qualitative ways of conducting surveys. This may to some extent be the case with my study, since it could be of relevance to recognize, that it perhaps is subjective and impressionistic, hard to replicate, difficult to generalize the results of, and lacking analysis transparency. Besides that any researcher in a qualitative investigation, could be considered as the main actor and tool for collecting data, and might have some preferences when it comes to registration of observations supporting special interests.

To safeguard a qualitative study it could be judged in the terms of having authenticity and being trustworthy. The later includes having credibility, transferability, being reliable and confirming objectivity. One of the positive aspects with a qualitative approach is that it is more flexible and can change direction and focus underway, according to how the project is progressing. Richer, but unstructured, data could be collected. Except for the process and contextual understanding it has been my ambition to see the meaning and to emphasize the experiences of the high school students.

5.2 Result

Throughout this study the aim has been to get as close as possible to a focus on the learner's experience of learning. And, in order to teach well it is imperative to continuously learn from the learner – to communicate, talk, listen and getting involved in the community of young people as the youth – sooner than we know – will master the world... of knowledge.

5.2.1 Learning logistics discussion

For the learning logistics the focus is on who the participants in the Young Masters Program ahead of the GEYC 2004 are, and how they organized themselves to carry out the learning activities and to interact in the online course, and how they used their time different learning activities in the Young Masters Program.

Concerning the attribute data obviously more girls than boys did actively participated and contributed to the evaluation, which means that the majority formulating and sending the answers to this questionnaire have been female students. Why is it like this? The reason could be that female students are more committed to the concept of sustainability, and that they are more engaged in environmental, social and economic (household) issues than the male

students. Otherwise it could depend on that the female students are more attracted to hang out online, to communicate and share experiences – maybe for a problem-solving purpose. And in these terms, it could be the case that the girls found it important to do the evaluation as a follow-up of the YMP course, and took responsibility for finalizing this part of the project. By giving feedback to the organizers they contribute to the further development of the ESD in the form of the YMP online. Whatever the cause could be, it could be worth notifying.

Remarkably, a majority of the participants are very young i.e. 16 years old or younger than 16 years (14-15 years old). The interest for participation in the YMP seems to decrease with age, since fewer participants are representing the older teenage groups (17-18 years age). These figures may indicate that the interest in the sort of online education that the Young Masters Program represents is especially strong among a big group of younger teenagers. Maybe, there is a tendency among these teenagers to demand, look for and engage in learning activities for sustainable development. It might be that appropriate and updated learning material is not available for the younger teenagers at their schools locally. The ESD may not be implemented in their schools earlier or not even recognized in the curriculum nationally, either.

Independently of the role you have in connection to the YMP – if you are a manager or designer of the course, instructor, tutor or teacher giving feedback, a mentor or student facilitating, a parent or a headmaster encouraging the teenagers in the YMP study – the time allocated by the teenagers for this form of the ESD mirrors how important and how seriously engaging they consider the study of the YMP to be. It could be of great interest for everyone involved in the ESD, to know how much time the youth spend in the learning environment of the YMP, to achieve an understanding of the importance and to estimate the priority the teenagers give to this form of ESD online.

A calculation of the time usage could be carried out. It indicates that a teenager took the whole 14 weeks long YMP online course during some 60 hours in average i.e. 1,5 week full time study of the YMP, or close to 4 hours per student and week, which seems to be a short time. Almost one third of the students estimated the time to be even more than 4 hours per week, and then it is not known what the upper limit is. Maybe excursions, investigations and study visits were not included in their answers. Perhaps it is not possible to say how long time in average a student could have spent on collaborating with the local delegation with the preparations for the assignment. It could differ widely from some hour till 2-4 hours a week or even more for some individual students. Nether the less the learning activities not online, investigations in the neighborhood as well as research, do also take time and seem to be important as a foundation ahead of the Forum Discussions. Except for that, the time disposal must depend on the ambition, time available (in competition with all subjects in ordinary school) and which pre-understanding and knowledge foundation the individual student has.

The fact that some students mainly visited quickly in the online course (on the learning management system LUVIT), could depend on local limitations for Internet access or lack of time because of other obligations i.e. homework in their ordinary and traditional school. There could also be a relationship between the number visitors in the online course at the same time, the interaction between the students and how attractive the online course site was experienced to be among the teenage students! Also the fact that the Internet is often accessed by the teenagers on their leisure time, and that the YMP course is web-based and can be reached from any computer connected to Internet - at home or at a Internet café – at any time of the day or night, could have contributed to the fact that quite many teenagers could visit the course online a lot to check what is happening in their virtual course, when they anyway where online. That could be the reason why 23 students (10%) did not keep track of how much time they spent online in the LUVIT. Those who work a longer time with the course

content on the CD may extract most of the YMP content in that way. Probably it is not the same students who spend a long time online in the YMP course. There could of course be variations in the ways to access and communicate knowledge and to stimulate the individual learning process. If the results from diagram 5 and diagram 7 are compared, a trend is showing that many more students (23%) access the YMP content online few times, while many students (30%) access the YMP content on the CD many times. Remarkably, 8 % of the teenagers could not say how much time they used the CD for the YMP. Some numerical data is consequently missing when it comes to the time disposal, since not all the youth answered all the questions.

At a first glance it seems as the CD is of less importance for the students learning activities. The most important reason for using the CD was probably to take part of the presentations (in total there are 16 presentations equally divided on part 1 and part 2), the glossary and the calendar, though all these presentations and the same information as on the CD also was available in the online course on the LUVIT platform. The main difference is the presence of a speaker reading the 16 presentations, which only can be heard in the CD version of the YMP course. This speaker might have facilitated the understanding of the YMP content and seems to have been appreciated by those who do not have English as a mother-tongue.

5.2.2 Learning for sustainability

The teenage students experience that they learn in a different way when they participate in the YMP course online. In the process-oriented learning for sustainable development they are empowered to act for positive and environmental change. Through the participatory approach of the YMP course online the use of critical thinking and reflection is encouraged. And this is a prerequisite for concrete action for sustainable development. Dialogue reshapes awareness.

From the results in this study, it is obvious that the learners in the YMP course online experience, as Anderson and Elloumi (2004) also declared, that one of the few sustainable ways to equip one another with skills and share resources to combat environmental degradation, human suffering and socio-economic problems is through online learning such as distance education for sustainable development.

The high school students mean that they raised their awareness of sustainability issues through fruitful dialogues, while reflecting over problems brought up by students in other countries. It started a process of comparing cultures, life and lifestyles, critical thinking and rethinking. A need of deepening their knowledge and learning problem-solving skills through global meetings occurred. Some students mentioned the challenge in optimizing the use and distribution of resources as energy and material, and be able to have a comfortable life and improve our standard of living. This complexity is of special interest in the result of this study, since according to Hansson (2004) this target group seldom is aware of the importance of the distribution of resources.

The YMP students expressed that they collaboratively learned from one another, and “by having a good word from us all” the commitment to work in a more sustainable direction was developed. By focusing on the group and noting the importance of words that capture newly constructed knowledge according to Malmberg and Svingby (2004) collaborative knowledge building is developed, since the ideas of value to a community continually improves and will be greater than the sum of the individual contributions. Or as expressed by one of the high school students in the YMP about this new educational approach with interaction: “We learned from it the actual meaning of Teamwork”.

Another interesting aspect is that many YMP participants already involve the ecological, the economic and social dimensions in sustainable development. These high school students also experience that thanks to the YMP the learning content of ESD at their school locally is widened to include more subjects than for example only science or biology, as well as the ESD is deepened in the use of reliable and meaningful learning content provided by experts. The YMP might give legitimacy to the schools in the work with a more trans-disciplinary approach. The YMP may also facilitate for many countries to include more of the economic and the social measurements in the future ESD. Exchange of didactical experiences in this field could be encouraged. By introducing to the upper secondary school students “new tools”, which the concept of the PES might be considered to be, a more participatory and holistic approach of the ESD could be developed. The Young Masters Program, which already seems to be of great importance to the students as individuals and as members of both the local and the global society, could make a difference.

Even though the majority high school students (74%) think the overall impression of support and feedback in the YMP course is good or even excellent, it seems to be a potential to improve and develop more interaction in the forum discussions and to increase the virtual exchange through more meetings and varied learning activities online.

It could be of interest to notice, that the high school students most of all want more feedback from experts and high school students in other cultures, but also from the teachers – particularly from the teachers in other countries. But it is also obvious that more feedback in general would be appreciated by the youth – even from their teachers and mentors.

The student and the teacher should according to Laurillard (2002) interact and constitute the learning process through a dialogue. The importance of a common ground in relation to the learning object shared by the teacher and the learner for successful learning is also emphasized by Tsui (2004).

The feedback to the teenagers from experts, which the IIIIEE staff could be considered as, consisted of inputs from a summarizing tutor, who commented on the assignments of the group in the discussion forum. Guidance on how the participating students in the same virtual course room as a team could develop the discussion further was also given by the tutor, with the purpose to encourage the students. Less satisfying is then that some upper secondary students meant that they did not get enough feedback in the virtual course rooms from the supervising tutors i.e. the experts at the university. This could perhaps occur since the YMP is a non-traditional and a non-academic course. It is run with a target group, which communicate without restrictions via new ways of ICT. And they are used to continuously get feedback from all around the world. It could also depend on, that the YMP belongs to the third task at the university, and therefore not yet seen as an opportunity for the university to reach out. Here, with youth as stakeholders outside the university challenges the academic world and offer a unique opportunity for a dialogue about the role of higher institutions in the overall societal transition towards sustainable development.

5.2.3 Online learning for sustainability

Within the framework of the YMP many high school students express that they explore new ways of communication, which enhance their learning process. They indicate that their knowledge deepened via the global meetings, which encouraged them and caught their attention on purpose to learn more from people in other cultures. The ICT-mediated contacts catalyzed the learning process and the education for sustainability. The variety of interaction between the young masters seems to be an overall new learning perspective and – in the context of learning at university – particularly remarkable.

The learning process is improved by the globalization tool which integrated to the education systems at all levels can be seen as a key agent for change, supporting commitment to learn globally about sustainability via ICT.

The great flexibility offered in online courses facilitate for the students and mainly supports the learning process. Still there are some disadvantages with the flexibility in the online learning for some students it could include lack of efficiency caused by slow communication between some groups (time zones, digital divide issues, incompatibility, insufficient feedback) as well as lack of quality control (no focus on learning objective, slow pace, missing study discipline), which could cause an increasing number of drop outs.

The students are free to take many paths through the YMP course and to create personal paths either for themselves or in collaboration with others. In the result of this study is also found, that through interaction, networking and teamwork youth is inspiring youth in their learning efforts concerning sustainable development, and thanks to the feeling of presence close relationship is developed directly among the students when online, which is pointed out by Malmberg and Svingby (2004). Knowledge building occurs among the individual student in online learning for sustainability as they get access to resources, which are highlighted by other students. The ICT-mediated learning activities are supported by the social exchange online and knowledge is shared and developed within the dimensions of the ESD.

In the online YMP course there are no time scarcity – no limitations for interaction and discussions. What is limiting in the ordinary class room and in the traditional education is, that the individual student do not have time enough available, and do not get enough space for discussions. Here the teenagers can be active in the forum discussions, the chats, and communicate online with other young masters, teachers and experts from all around the world. They experience that it is beneficial to be in an attractive course, to meet other committed youngsters, and to be able to interact through the internet.

With the new ICT-extended university, the quality of teaching and learning by outreach could be improved further. Teachers and tutors, who wish to achieve a high standard of competence with their students, cannot leave them alone to supply all additional support. Learning materials should address all aspects of the learning process, but most of these fail to provide feedback on students' description of their conceptualisation of a topic according to Laurillard (2002). The support of the reflection and the experiences, the students had within a learning session, is absent. Teaching has to be interactive to overcome misconceptions. By interaction and communication globally via the internet these teenagers come to know one another, get empowerment, and strengthen their learning ambitions in the field of ESD, and particularly as the Young Masters. A vital part of the learning process is the discussion mediated by networking. In the open Forum Discussion in the YMP course, a lot of students are involved, but many more are learning by observing. Still the students need individualised responses and feedback from tutors in the role of teachers and teachers on how they express what they know. This is needed to achieve a desirable level of competence for all participating students.

If the universities wish to reach out, the academic has to provide a learning environment in which interaction with ideas and descriptions take place. It is not sufficient to just open up access to new information and experiences, even if the students express that the global interaction is extremely important in the ESD. To increase the understanding of how successful learning processes could be designed, and carried out as outreach at the university, the YMP could be of special concern. The YMP might serve as a bench marking and learning example worthy to do more research on for educational online development purposes.

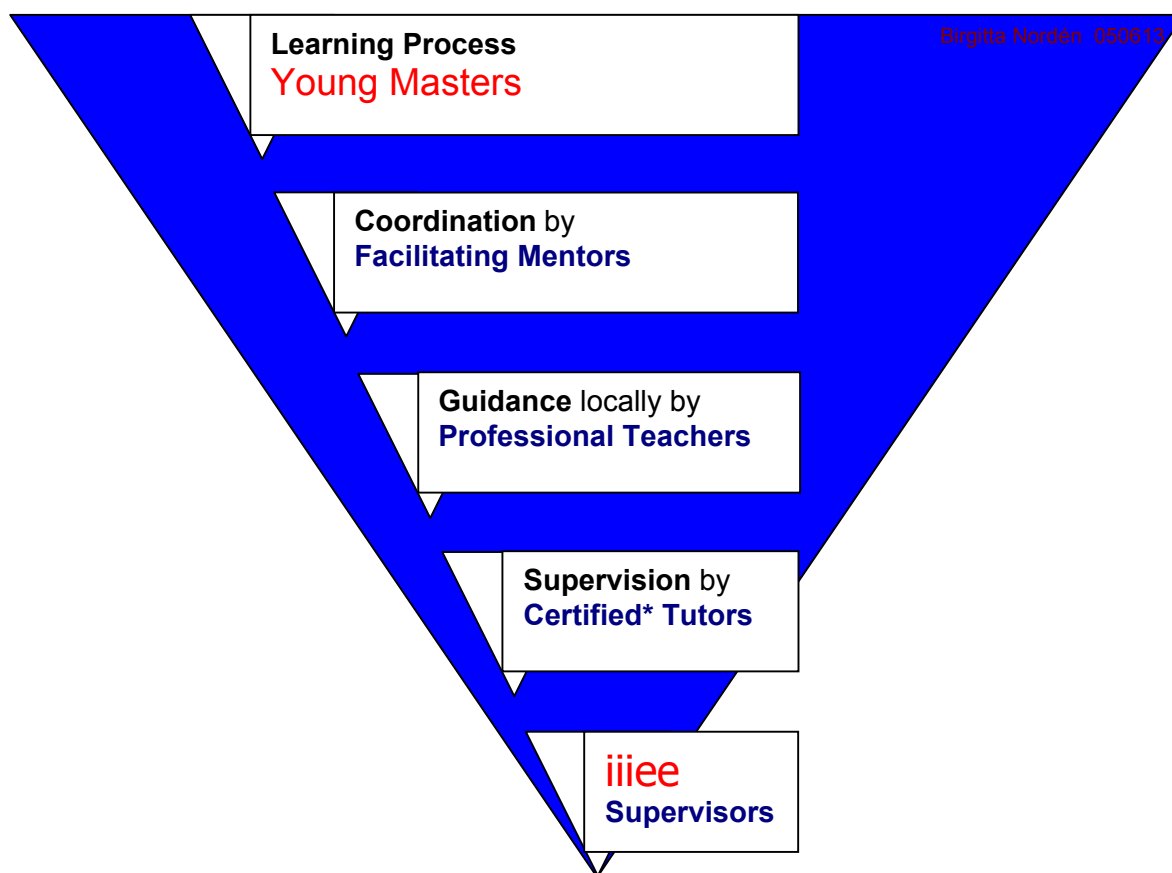
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<http://www.iiiee.lu.se/pdf/young_masters.pdf>
Lund: IIIIEE at Lund University.

Appendix 1

A model for the Learning Process within the Young Masters Program (YMP), which is conducted at Lund University in Sweden by the International Institute For Industrial Environmental Economics (IIIEE).



*Certified Tutors are those who have taken the IIIEE distance course, 15 ECTS, "Introduction to Cleaner Production".

Appendix 2

Course content and calendar for the YMP 2004

YOUNG MASTERS PROGRAM spring 2004 - PREVENTION IS BETTER THAN CURE CALENDAR for YOUNG MASTERS PROGRAM - March to June 2004 -		
PART 1 - INTRODUCTION TO THE ENVIRONMENT		
	<u>Type of activity</u>	<u>Starting time</u>
INTRODUCTION TO THE ENVIRONMENT		
Week 1		March 1, 2004
Hanna and the Environment	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
What is Nature?	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 2		March 8, 2004
It's time we talk about Ecology	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 3		March 15, 2004
Biodiversity	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 4		March 22, 2004
Environmental concerns	Presentation	
Population growth and health	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 5		March 29, 2004
Sustainable Development	Presentation	
Week 6		April 5, 2004
The Plan Ahead	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
	Evaluation of Part 1 online via Internet 	April 12, 2004

PART 2 - PREVENTIVE ENVIRONMENTAL STRATEGIES, PES		
	<u>Type of activity</u>	<u>Starting time</u>
INTRODUCTION TO PREVENTATIVE ENVIRONMENTAL STRATEGIES		
Week 7		April 12, 2004
Different Approaches to solve Environmental Problems	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 8		April 19, 2004
Actors in society: Their Environmental Problems and Its Solutions	Presentation	
Week 9		April 26, 2004
Introduction to Preventive Environmental Strategies (PES)	Presentation	
Week 10		May 3, 2004
Some Examples of PES from Different Sectors: Part 1	Presentation (also as an introduction to Part 3, the project work, about how to apply PES).	
Week 11		May 10, 2004
Some Examples of PES from Different Sectors: Part 2	Presentation	
Week 12		May 17, 2004
Non-industrial PES: Roles of Consumers	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 13		May 24, 2004
Industrial PES Part 1 – Design for Environment and Product Development	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
Week 14		May 31, 2004
Industrial PES Part 2 – Production and Construction	Presentation	
	Learning Activity	
	Forum Discussion in LUVIT via Internet 	
	Evaluation of Part 2 online via Internet 	June 7, 2004

Appendix 3

GEYC 2004 (EVALUATION of PART II)

Evaluation form for Part II of the Young Masters e-learning course within GEYC 2004 is now available. Your comments are very important to improve the web-based GEYC and similiar courses that we might produce in the future. After finalizing Part II of GEYC with your delegation, please take your time and answer this questionnaire carefully. Then click on "Submit the answers" button at the bottom of the page. Certificates will be given to those who have finalized PART I and PART II (including the evaluations). Thanks in advance!

Birgitta Nordén,
Director of Distance Education - Young Masters Program, YMP,
Young Masters Program in China (YMPiC),
and Global Environmental Youth Convention, GEYC.
E-mail: birgitta.norden@iiee.lu.se

I. QUESTIONS ABOUT YOU AS A STUDENT

1. Which delegation do you belong to?

ARGENTINA 1
ARGENTINA 2
ARGENTINA 3
ARGENTINA 4
ARGENTINA 5
ARGENTINA 6
AUSTRALIA 1
BAHRAIN 1
BELARUS 1
BURUNDI 1
COLOMBIA 1
COSTA RICA 1
COSTA RICA 2
COSTA RICA 3
CZECH REPUBLIC 1
DENMARK 1
DOMINICA 1
EGYPT 1
EGYPT 2
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EGYPT 100
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GREECE 1
GREECE 2
GUYANA 1
HONDURAS 1
HONDURAS 2
HUNGARY 1
INDONESIA 1
INDONESIA 2
INDONESIA 3
INDONESIA 4
INDONESIA 5
INDONESIA 6
INDONESIA 7
INDONESIA 8
INDONESIA 9
INDONESIA 10
INDONESIA 11
INDONESIA 14
JAPAN 1
JORDAN 1
KENYA 1
LITHUANIA 1
LITHUANIA 2
LITHUANIA 3
LITHUANIA 4

LITHUANIA 5
MEXICO 1
MEXICO 2
NICARAGUA 1
PAKISTAN 1
PERU 1
PERU 2
POLAND 1
PORTUGAL 1
PORTUGAL 2
REP. DOMINICANA 1
RUSSIA 1
RUSSIA 2
SPAIN 1
SPAIN 4
SPAIN 5
SWEDEN 1
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SWEDEN 16
SWEDEN 17
SWEDEN 18
SWEDEN 20
SWEDEN 21
SWEDEN 22
SWEDEN 23
SWEDEN 26
TURKEY 1
USA 1

Write your NAME and CORRECT e-mail address (to prepare your personal certificate)!

1.1 How old are you?

younger than 15
15
16
17
18
older than 18

What is the name of your school?

1.2 Are you...?

Female student Male student
Which is your home address?

1.3 Which courses have you participated actively in?

GEYC 2004
YMPiC 2004
YMPiC - the pilot course 2003
GEYC 2002
GEYC 2000

Write the name of the teacher who helped you to participate!

1.4 How many hours a week have you worked in the course in total?

0-2 hours
2-4 hours
more than 4 hours

1.5 How many hours a week have you as a student worked with your delegation locally with "Learning Activities" and assignment preparations?

0-2 hours

2-4 hours
more than 4 hours

1.6 How many hours a week have you, as a student, worked on-line connected via Internet reading, writing and commenting presentations and assignments in the course?

0-1 hours
2-3 hours
more than 3 hours

1.7 How many hours a week have you used the CD to get information and take part of the presentations?

0-1 hours
2-3 hours
more than 3 hours

1.8 What is your overall impression of the Young Masters e-learning course within the GEYC 2004?

poor
mediocre
acceptable
good
excellent

1.9 What is your opinion about course coordination and organisation in general in the GEYC course?

poor
mediocre
acceptable
good
excellent

1.10 What is your overall impression of support and feedback in the GEYC course?

poor
mediocre
acceptable
good
excellent

Why?

II. QUESTIONS ABOUT YOUR OWN LEARNING

1.11 WHAT was the most important thing you learned on this course?

1.11.1 WHY do you think this is important?

1.11.2 HOW did you learn about this specific thing?

1.11.3 WHAT helped you most in learning about it?

1.12 DESCRIBE HOW you have worked with your fellow students, your mentor and your teacher in your delegation at school locally!

1.12.1 What have you learned from Young Masters in other countries during the Forum Discussions?

1.12.2 What have you learned from Young Masters in your own country during the Forum Discussions?

1.12.3 Tell us how you personally have been influenced by participating in this web-based Young Masters course (GEYC Part I & Part II)?

1.12.4 How do you think the future will be? Which scenario do you see?

1.13 WHO would you like to have more feedback from?

your own mentor
your own teacher
mentors from other cultures

teachers from other cultures
students in your own delegation
students in other cultures
tutors
experts

1.13.1 Describe advantages with an e-learning course about sustainability?

1.13.2 Are there any disadvantages with an e-learning course?

III. QUESTIONS ABOUT YOU AS A DELEGATION

2.1 How many students have you worked with in your delegation?

less than 3

3

4

5

6

7

more than 7

Write their complete names here (for the certificates!!!)

2.2 How many students do you think should work together in a delegation?

1-2 3-5 6-9 more than 9

IV. LEARNING VIA THE CD - PART II IN THE COURSE

3.1 How many times have you used the CD in PART II?

less than 5

5-10

more than 10

3.2 How would you rate Part II in general on the CD?

poor

mediocre

acceptable

good

excellent

3.3 Which information on the CD was most valuable?

Guidelines to LUVIT

Presentations

The English speaker

Glossary

Calendar

3.4 How do you value the presence of photos on the CD?

none

less important

unimportant

important

very important

extraordinary

3.5 How do you value the presence of illustrations and drawn pictures on the CD?

none

less important

unimportant

important

very important

extraordinary

3.6 How do you value the presence of a speaker's voice on the CD?

- none
- less important
- unimportant
- important
- very important
- extraordinary

V. LEARNING VIA INTERNET - PART II IN THE YOUNG MASTERS COURSE

4.1 How many times have you been connected to the Young Masters web-based course in PART II?

- less than 5
- 5-10
- more than 10

IN SOME OF THE FOLLOWING QUESTIONS A RATING SCALE WILL BE USED! Please, indicate how you rate...

4.2 The course on-line in general.

- poor
- mediocre
- acceptable
- good
- excellent

4.2.1 Information in "MORE ABOUT LUVIT" about how LUVIT functions.

- poor
- mediocre
- acceptable
- good
- excellent

4.2.2 Information in the introductions to Part II and in Week 7-14.

- poor
- mediocre
- acceptable
- good
- excellent

4.2.3 Learning activities locally with your delegation.

- poor
- mediocre
- acceptable
- good
- excellent

4.2.4 Reading and commenting the assignments written by the other delegations.

- poor
- mediocre
- acceptable
- good
- excellent

Comments?

4.2.5 Forum Discussions with the other delegations in your Group.

- poor
- mediocre
- acceptable
- good
- excellent

Comments?

4.2.6 Feedback from IIIIEE staff in the FORUM Discussions in Part II.

poor
mediocre
acceptable
good
excellent

Comments?

4.2.7 Feedback from other students in the FORUM Discussions in Part II.

poor
mediocre
acceptable
good
excellent

Comments?

4.2.8 "Present yourself" and the presentations made by other students.

poor
mediocre
acceptable
good
excellent

Comments?

Please, indicate how you rate the following presentations...

4.3.1 The presentation 7: Different Approaches to Solve Environmental Problems.

poor
mediocre
acceptable
good
excellent

4.3.1.1 How much did you learn from this presentation? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.1.2 How much did you learn from the Forum Discussions in Week 7? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.2 The presentation 8: Actors in Society.

poor
mediocre
acceptable
good
excellent

4.3.2.1 How much did you learn from this presentation? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.3 The presentation 9: Introduction to PES.

poor
mediocre
acceptable
good
excellent

4.3.3.1 How much did you learn from this presentation? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.4 The presentation 10-11: Some examples of PES (1 & 2).

poor
mediocre
acceptable
good
excellent

4.3.4.1 How much did you learn from these presentations? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.5 The presentation 12: Roles of Consumers.

poor
mediocre
acceptable
good
excellent

4.3.5.1 How much did you learn from this presentation? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.6 The presentation 13: Industrial PES - Design for Environment (DFE).

poor
mediocre
acceptable
good
excellent

4.3.6.1 How much did you learn from this presentation? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

4.3.7 The presentation 14: Industrial PES - Production etc.

poor
mediocre
acceptable
good
excellent

4.3.7.1 How much did you learn from this presentation? (1=nothing, 2=very little, 3= something, 4=much, or 5=very much).

1 2 3 4 5

VI. LUVIT - LUND UNIVERSITY VIRTUAL INTERACTIVE TOOL

5.1 What do you think of the following aspects of the LUVIT...???

5.1.1 How do you rate the Interface (appearance) of LUVIT?

poor
mediocre
acceptable
good
excellent

5.1.2 How do you rate the Interface (user-friendliness) of LUVIT?

poor
mediocre
acceptable
good
excellent

5.1.3 How do you rate the Navigation (moving between web-pages within LUVIT)?

poor
mediocre
acceptable
good
excellent

5.1.4 How do you rate Functionality (speed and accuracy of loading web-pages within LUVIT)?

poor
mediocre
acceptable
good
excellent

5.2 Do you have any prior experience with LUVIT?

yes no

5.3 Do you have any experience with other software for distance learning?

yes no

5.3.1 If yes, which software have you used for distance learning so far?

5.3.2 What are the advantages/disadvantages with LUVIT?

VII. TIME REQUIREMENTS

6.1 Is it realistic to cover the course content in Part II in a 8-week period with about 3 hours study per week and student?
yes no

6.2 How long time - in weeks - do you think would be perfect to take Part II of this course?
5 6 7 8 9 10
Why?

6.3 What would be the maximum time you would spend on learning the software tool, LUVIT, before starting with the Young Masters course content?
less than 2 hours
3-6 hours
not more than 10 hours

VIII. ABOUT YOUNG MASTERS...

7.1 Please, suggest some way in which we might improve the course content in the future!

7.1.1 Is there anything in the course you feel you would like to have learned more about?

7.1.2 Please, comment on what you think you missed!

7.2 Is there anything that we have forgotten to ask you about, or you just want us to know? Please, write some lines!!!

The following conditions apply to all participants in the YMPiC & GEYC.

7.3 I accept that anonymous statistics (e.g. progression, time-on-line, comments, interaction with other students, etc.) may be compiled for administrative and research purposes to improve future web-based courses of this type.
yes no

THANKS A LOT FOR ANSWERING THE QUESTIONS! Please, click on "Submit the answers" button.
CERTIFICATES for PART I and PART II of GEYC 2004 will be prepared for those who have finalized this course (including the evaluations of Part I & Part II). If you can not take part in the GEYC 2004 Convention in Alexandria September 11-16, 2004, the certificates will be sent to you as soon as possible.

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