

Shailendra Vyakarnam, Katalin Illes, Anette Kolmos & Thomas Madritsch

MAKING A DIFFERENCE

A Report on Learning by Developing – Innovation in Higher Education
at Laurea University of Applied Sciences



**LAUREA PUBLICATIONS
B•26**

MAKING A DIFFERENCE

**A Report on Learning by Developing – Innovation in
Higher Education at Laurea University of Applied
Sciences**

**Shailendra Vyakarnam, Katalin Illes, Anette Kolmos
& Thomas Madritsch**

2008 Vantaa

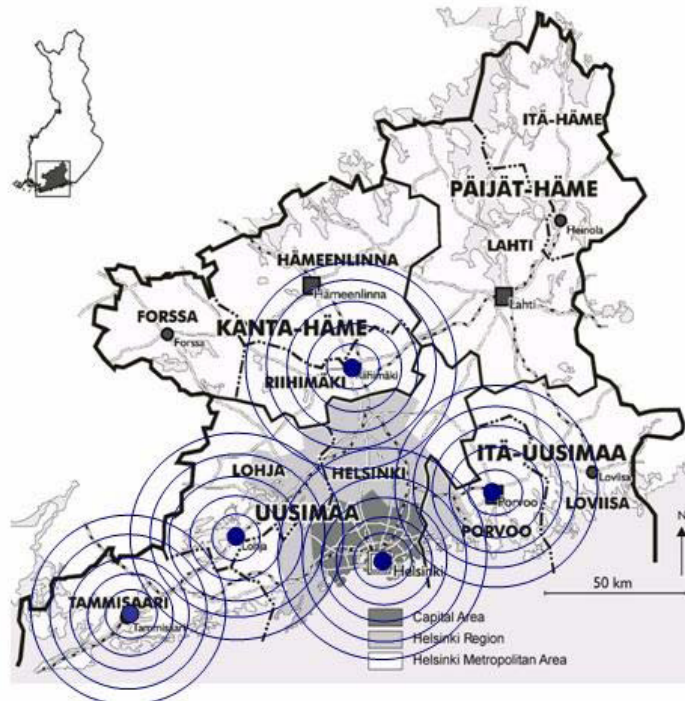
Copyright © author
and Laurea University of Applied Sciences

ISSN 1458-7238

ISBN 978-951-799-132-0

Editä Prima Oy, Helsinki 2008

Larger Helsinki Metropolitan Area



Source: Territorial Review of Helsinki, OECD, 2003

Larger Helsinki Metropolitan Area¹

¹ OECD. 2004. OECD Territorial reviews Helsinki, Finland. Volume 2003. Number 30. April 2004.



Evaluation Team

Katalin Illes, Thomas Madritsch , Anette Kolmos, Shailendra Vyakarnam

Acknowledgements

Our roll call of acknowledgements for the guidance, support, assistance and hospitality is a large number. We believe there was enthusiasm to ensure the evaluation team got the information it needed, in a spirit of openness.

To arrange the evaluation was a logistical challenge, that only bright young people can achieve and that is exactly what we had. The planning meetings, visits, IT support, travel, accommodation and food – all executed to very high standards. So to all at Laurea – many thanks.

In particular we need to thank those who shouldered the extra responsibility for taking care of us:

Development Director Outi Kallioinen

Vice President Jaakko Tarkkanen

Director Maarit Fränti

Regional Development Director Vesa Taatila

Director of Communications Päivi Korhonen

Quality Director Jaana Ignatius

Director of International Activities Arja Majakulma

Management assistant Outi Laine

Management assistant Elina Pohja

Assistant of International Activities Raisa Saviaho

Research assistant Denise Reymann

And thanks also goes to:

President Pentti Rauhala

Vice President Tuija Hirvikoski

Director Katariina Raij

Development Manager Mirja Vainikainen

Senior Lecturer Anne Vuorinen

Development Manager Satu Hyökki

Student Roope Kiviranta

Student Kristiina Litukka

Student Conrad Lyaruu

As well as to all the personnel and students of Laurea University of Applied Sciences

We also met about 30 other people as part of our interviews. Because we promised confidentiality – may we thank you in confidence!

Without your co-operation there would be no report.

Profile of Evaluation team

Dr Shailendra Vyakarnam, who lead the team has been in entrepreneurship education for over 20 years basing his work largely on action learning methodology. As a pracademic he has a long track record in higher education. He founded a consulting firm – Transitions in 1990 and is on the board of a number of small businesses and not for profit organisations. He has published extensively and has several academic affiliations.

Dr Katalin Illes is Director of International Corporate and Social Responsibility, AIBS, at Anglia Ruskin University in Cambridge. Dr Illes is an experienced educator, public speaker, facilitator and personal coach. She incorporates lecturing, research and consultancy in her career. She is passionate about sense making and meaningful, trust based relationship building. She has been working with public and private sector organisations and universities in Belgium, Britain, Denmark, Finland, Hungary, India, the Netherlands and Switzerland.

Anette Kolmos, professor in Engineering Education and PBL and Chairholder for UNESCO Chair in Problem Based Learning, Aalborg University. Dr. Kolmos holds a Ph.D. in "Gender, Technology and Education" (1989). During the last 20 years, she has researched following areas, primarily within engineering education: Change to PBL curriculum, development of transferable skills and faculty development. Dr. Kolmos is associate editor for the journal: Journal for Engineering Education, ASEE and in several editorial journal boards. She has served as member of several advisory boards. She is coordinator for the EU-project, Socrates project, PBL-Engineering which is developing the master programme: Problem Based Learning in Engineering and Science.

Thomas Madritsch began directing the Facility Management and Real Estate Management degree program at the University of Applied Sciences in Kufstein Tirol in 2001 after acquiring more than fifteen years of professional experience in facility management. As Director of Studies, his focus is the development and enrichment of academic programs for full and part-time undergraduates and graduates in Facility Management and Real Estate Management. He has spearheaded, managed and collaborated on several innovative research projects. In addition, Thomas Madritsch holds many key positions on national and interna-

tional committees, advisory boards and in professional associations. He has published dozens of papers and journal articles based on his combined practical and academic experience in real estate and facility management. He has accepted invitations to lecture and give presentations about various facility management topics at universities and conferences throughout the European Union, Scandinavia, Central Europe and in the USA. The quality and scope of his work in this field has been recognized and awarded by respected organizations both at home and abroad.

Summary

Within the context of Finnish Higher education reforms Laurea University of Applied Sciences sought to review its own innovation of its Learning by Developing (LbD) model. This report sets out the background to LbD within the context of a conceptual framework of project based learning and provides findings from the study. Five main recommendations are made for the continued expansion of LbD.

Background

Laurea made a strategic choice to implement, develop and use Learning by Developing as an operational model in order to contribute to the growth of the region around Helsinki, as well as to provide tangible employability benefits to its population of 8000 students. The LbD model at Laurea is work in progress and the purpose of the review at this stage is to seek insights and suggestions for the future while simultaneously providing the staff and faculty an opportunity for reflection during the review process itself.

Learning by Developing (LbD) is an innovative operating model which requires students to undertake projects rooted in the world of work aiming to produce new practices, the progress of which requires collaboration between teachers, students and workplace experts. LbD may also be described as a learning vehicle for the development of two sets of competences. The first being generic such as work/life knowledge and skills and the second being subject specific competences.

LbD also contributes to regional development through the student interaction on projects and especially through Laurea playing a strong role in creating international links. Much effort is expended in ensuring local, regional and international ties.

Purpose of the study

Our fundamental questions included a comparison between LbD, which is a Laurea created hybrid learning model with other existing project and problem based

learning models. We also ask how sustainable and scalable the model is and to answer these we also needed to find out current experiences and gain insights from those who deliver, design and develop the whole programme of activity.

Methods

In addition to scholarly literature and technical publications provided by Laurea, the evaluation team also interviewed stakeholders; students, alumni, staff, faculty and external influencers and policy makers. The evaluation process was run over two detailed visits; first a planning meeting, followed by site visits and interviews. All of this was superbly organised in a spirit of openness and trust.

The international team then worked over cyberspace to pull this report together.

Findings

Comparing LbD with Problem or project based learning we see that the major benefits are based on the sense of ownership of creating LbD. It appears to us that LbD is values driven and takes a more holistic view of students than would be the case where projects or problems are the focus. LbD is also focused on ensuring that students can “do things” rather than just be able to repeat answers in exams. LbD recognises the need to enable students with investigative and social skills, alongside providing them with knowledge expertise in their chosen fields of study.

The vision and values of LbD are clear, but have yet to be communicated effectively across the whole institution, because we found students and faculty who had not grasped the model. LbD is presently operated in an open and sometimes ambiguous environment, thus relying on trust that students and faculty will “sort it out”. Although for some people this can be stressful, this does help to create a valuable culture of freedom and responsibility within Laurea.

The faculty (approx 500) are largely from industry background with further education and training in education. They are starting to undergo training in LbD principles and values. It is early days and there is much work to be done to gain momentum because Laurea have both the traditional and the LbD methods of teaching during its transition phase and this can get confusing for participants.

LbD creates an early and valuable experience of the world of work for its students, as a result of which they can gain both generic and subject specific competences. These competences have been specified in great detail, but we can see that these will evolve with experience. It is also evident that the measure-

ment of students' progress over the course of their study is at a nascent stage and needs a detailed review, especially if it is to provide LbD with growing credibility.

Recommendations

The LbD model needs to be made more transparent and be simplified. It is presently communicated in a very complex language and the very strength of openness makes it vulnerable to ambiguity. In addition, the transition phase has created dichotomies that need managing, for instance in curriculum design, methods of assessment, faculty resource allocation, and student expectations.

As the LbD model is further developed attention will need to be paid to the way courses and activities are designed to facilitate student collaboration and project management. In particular, projects may need to be progressive so that the acquisition of competences is enriched by increasingly comprehensive and meaningful learning experiences. This shift in emphasis will automatically lead to a review of the ways that assessments are carried out.

With LbD, the acquisition of collaborative opportunities is central to the learning experience and for LbD to become a sustained and embedded part of the way Laurea goes forward it will be necessary to build on present project management systems including the way they are promoted and marketed.

LbD is a comprehensive shift. It is a bold step for an Institution to take. To grow it and to make it sustainable is an even bigger challenge. The review has indicated that there is both the will and the skill within Laurea to take this journey of LbD and other Higher Education Institutions are encouraged to stay in touch with Laurea as people within are open to sharing the lessons.

It has been a pleasure to be part of the evaluation team.



Content

ACKNOWLEDGEMENTS	5
PROFILE OF EVALUATION TEAM	7
SUMMARY	9
1 INTRODUCTION.....	14
2 BACKGROUND.....	15
3 LBD AS A STRATEGIC CHOICE	18
4 COMPETENCE BASED CURRICULUM	21
5 PURPOSE OF THE EVALUATION STUDY	25
6 METHODS	27
7 FINDINGS	30
8 CASE STUDIES	39
9 DISCUSSION	59
10 RECOMMENDATIONS.....	64

1 Introduction

Within the context of Finnish Higher education reforms Laurea University of Applied Sciences wanted to review its own innovation in Learning by Developing - model. The management board organised an international evaluation during 2007. The main objectives are to evaluate Laurea's LbD-model and simultaneously support and contribute to its development with new ideas and perspectives.

Because LbD is at a formative stage and we wanted to simultaneously learn and evaluate, we designed and planned the study in an inclusive manner with all the participants. This evaluation created a fruitful learning process for all participants at Laurea which is already of great value in itself.

LbD is also creating a change agenda of some complexity, especially as it is a public institution. Laurea's story deserves to be told as the change strategy is unique in regard to several aspects. It is also important to emphasize that the change process has not yet finished. Therefore, in addition to evaluating LbD we also address change strategies.

The rest of this report sets out a detail background of LbD. We explain our evaluation method and set out findings. These are set in the context of conceptual models where necessary. Because LbD is work in progress, we have also included a brief discussion of broader points before setting out our recommendations.

There is of course a contents page so that you may fast forward your way to the sections of interest.

We hope our readers learn as much from this document as we did in putting it together.

2 Background

The macro-environment

Developing the European Higher Education Area has been a fruitful process for the Finnish Universities of Applied Sciences because it has given clear structures and direction. In the Finnish higher education sector there is a national, structural change process going on among the two types of Institutions, Universities that provide academic courses have an intake of some 19,000 students each year and Universities of Applied Sciences that have about 26,000 student intake each year.

The decision on these numbers is made by the Ministry of Education. The wider Helsinki region has a total of 50,000 students, 40% of whom are in Universities of Applied Sciences. The Universities of Applied Sciences appeals to those who are getting into higher education for the first time – first time academics and have about 25% of its student body from vocational schools (high schools).

Higher education is free of fees in Finland, supported entirely by the State, both at national and regional levels. Students also receive generous grants for sustaining themselves through higher education. In order to build a well educated nation (of about 5 million) earlier Governments have dispersed educational institutions across the country, so there are many small Universities that are lacking in critical mass and the plans going forward are to try and combine some of these Institutions so as to gain further efficiency and critical mass.

Finnish Universities of Applied Sciences are more than 10 years old and have established physical and organisational infrastructures. However, the ever changing environment and the transferable “ECTS credits” means that they need to remain alert to need for reviews of contents and models in teaching and learning.

The Ministry of Higher Education has sustained an open mind about its guidance to Institutions in terms of what and how teaching is delivered. This is to foster a wider experience, enable Universities to develop their own unique selling propo-

sitions and to provide a greater diversity of experience. So, there are now strict guidelines from the Ministry about how the curriculum is to be delivered.

The influence from Government comes from the way the funding is managed. 70% of income for Universities is part of a budget in terms of anticipated student numbers and 30% is a function of numbers graduating each year. This places considerable emphasis on Institutions to be able to recruit and retain students and on the quality control measures. The employability statistics then influence the internal workings of each University because this influences the more detailed measures that are in place to ensure that what is taught and how teaching is delivered is appropriate to the needs of employers.

Laurea University of Applied Sciences

Laurea University of Applied Sciences in the larger Helsinki metropolitan area has 8000 students and 500 staff. It is the fourth largest university of applied sciences in Finland. Thirteen Bachelor's degree programmes are taught in Finnish and three in English, five Master's programmes in Finnish and one in English. Laurea is a value-driven university with three main strategies steering its operations: r&d, regional development and pedagogical development.

- The strategic intent², is to be an acknowledged and international university of applied sciences in innovation activities by 2010.

To be acknowledged is defined as playing a strong regional development role by the provision of the newly established professional Masters programmes in the Finnish dual system of higher education and being an active player in regional innovation activities, resulting in new knowledge and competence. All this is in accordance with the quality criteria set for the European Higher Education Area.

The international orientation of Laurea enriches its own and the regional environment through valuable networks, engaging with top-level expertise, and carrying out research and development programmes.

Laurea's *strategic choice in the region* is to *participate in development programmes through* numerous Centres of Expertise and Regional Centre Programmes. According to the Regional Plan of Uusimaa Province, "by 2025, Uusimaa will be the most competitive, the safest and the most enjoyable metropolitan region in northern Europe". (Laurea 2005.).

² Laurea 2005. Proposal to become a regional development centre of expertise. Application for the Finnish Higher Education Evaluation Council.

As a university of applied sciences Laurea has to integrate its three main tasks (r&d, pedagogy and regional development). The main *strategic aims* for Laurea's *regional development work*, are: 1) *supporting metropolisation*; 2) *reinforcing cluster development*; 3) *bringing about effective innovation*; and 4) *increasing the internationalisation of regional development work*. These perspectives are embedded in the r&d and pedagogical strategies.

3 LbD as a strategic choice

Laurea has made a strategic choice to implement, develop and use Learning by Developing (LbD)³ as an operational model. A more detailed definition is provided below. Through this strategic choice Laurea has embarked on an organisation culture change. According to the Laurea's vision students and employers will choose to come to Laurea and through this model students aspirations will be raised and in turn this community of participants can then make a difference and will be empowered to act in a socially responsible manner not only in the workplace but also in the community.

The disciplines in which Laurea has decided to focus include:

- Business Studies
- Hospitality management
- IT and Communications
- Nursing and physiotherapy

The Ministry supports this innovative approach of creating a “metamodel” for regional development combined with teaching and research and development skills. LbD is becoming Laurea's key differentiator – or brand proposition based on the values of openness and “learning rather than teaching”.

So the pedagogical approach is very work life oriented and many of the faculty members have a professional working experience, a Masters Degree and undergone teacher training courses.

Of the funding it receives from Government – approximately 88% of its revenue, the split is 70% against budgets and 30% against actual targets. The remaining 12% comes from providing services to local companies and organisations.

³ Pedagogical strategy 2007. Laurea University of Applied Sciences.

Defining Learning by Developing (LbD)

Learning by Developing (LbD) is an innovative operating model based on authenticity, partnership, experiential learning and research. LbD requires students to undertake projects rooted in the world of work aiming to produce new practices, the progress of which requires collaboration between teachers, students and workplace experts. Students' learning is focused on personal development to aid them in working life, providing research and social skills as well as the ability to produce new knowledge about their environments and working practices. In other words to enable them to acquire the competences needed to enable them to be more employable and make sense of the world of work earlier in their higher education experience.

The term Learning by Developing (LbD) is highly appropriate and descriptive. LbD melds together the two main functions of universities of applied sciences. Professional education (learning) and teaching based on research (developing).⁴ The Finnish Ministry of Education named Laurea, based on LbD, as a centre of excellence in education for 2005-06.

⁴ Pedagogical strategy 2007, Board of Laurea

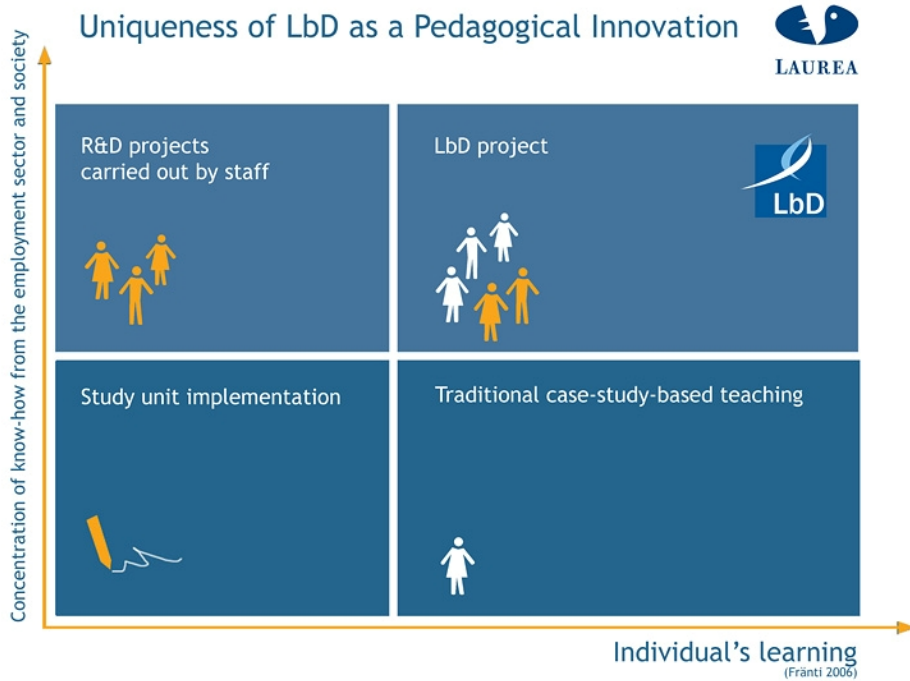


Figure 1: Exceptionality of the LbD model as a pedagogical innovation⁵

⁵ Fränti 2006 in: Pedagogical strategy 2007, Board of Laurea

4 Competence based curriculum ⁶

Laurea's curriculum reform took place in 2004-2006 and the new competence-based curriculum was ready by August 2006 for all degree programmes. The new future oriented, competence-based curriculum allows Laurea to follow the requirements for change coming from the labour market and society. The reform also links to the curriculum development of the European Higher Education Area, which is based on core competences.

In each element of the curriculum there is a description of the operational environment and a description of expertise of the field.

⁶ According to Dr. Outi Kallioinen, Laurea's generic competences compared with European competence definitions, Paper presented at ECER 2007 in Ghent Belgium

Competence Development in the LbD Model (adapting Raji 2007)

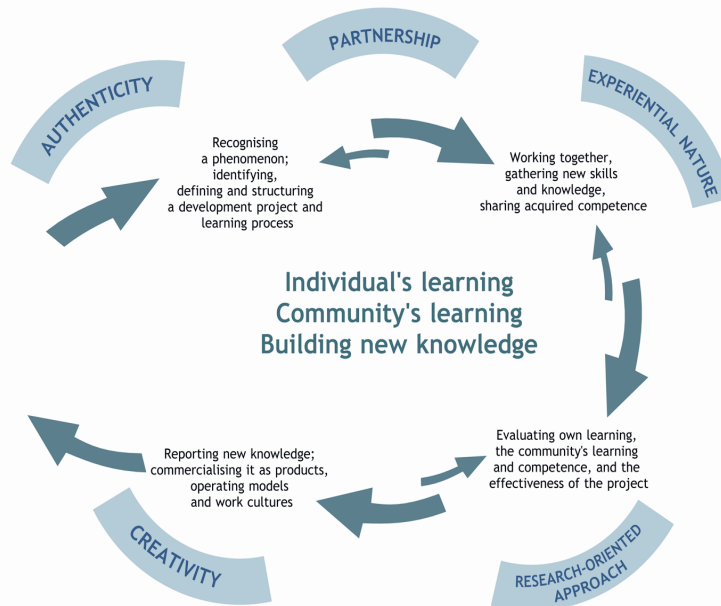


Figure 2: Competence development process (Laurea pedagogical strategy 2007)

Developing expertise

The competence areas for the expert (e.g. nurse) are analysed from the idea of expertise of the future and the professional themes of the curriculum are based on this analysis. All curricula at Laurea are structurally organised in professional themes and generic competences. Basically all study units are 10 credits which enables the guidance of larger professional themes instead of small 1-3 credit courses.

The basis for the student's development in his/her career and expertise is formed by the subject-specific competences.

Developing generic competences

The generic competences may have different emphases and vary in importance in different professions and vocational tasks although they are common to different degree programmes and subject fields. The generic competences form a basis for the person's participation and collaboration in working life as well as for his/her professional development. The generic competences are often developed while the students are acquiring special expertise.

Diverse pedagogical solutions and learning environments play an important role in the development of generic competences required in working life. This definition can also be applied to Laurea's conception of generic and specific competences although the acquisition of generic competences starts at the very beginning of the studies in the first term.

At Laurea the generic competences are structured through several levels. Each competence progresses from personal to organisational development and further on to social reform level. The shared generic competences for all degree programmes (13 Finnish and 3 English) are:

- **Ethical**
- **Innovation**
- **Reflection**
- **Globalisation**
- **Networking**

In addition to the five shared generic competences, each degree programme's core competences can be classified as skill-based professional competences or knowledge-based professional competences. Laurea's pedagogical concept merges together knowledge and skills to form professional competence and these are further defined in great detail in course guidelines within themes and study units of each of the Degree programmes.⁷

All Laurea's students must reach at least the personal level in all generic competences.⁸

⁷ Pedagogical strategy 2007, Board of Laurea

⁸ Pedagogical strategy 2007, Board of Laurea

Defining LbD from a regional perspective

In regional development terms the contribution of LbD is that it acts as a stimulant for employers to explore innovations, new solutions, dive deeper into issues that need to be solved and infuse new thinking through the interaction with students and supportive faculty of Laurea. It brings the demands of developing the employment sector into the innovative area as learning objectives and creates a systematic and project-based operating model for productive networking.

Among the benefits LbD are the longer term benefits of the social and structural networks⁹ that are created locally, thus laying the foundation for innovation based entrepreneurship.¹⁰

9 A deeper definition of the benefits to a region's growth from the growth of social networks can be found in a paper by Y.Myint, et al (2005).

10 Pedagogical strategy 2007

5 Purpose of the evaluation study

It is evident from the background of macro changes, the work-in-progress of LbD at Laurea and the overall desire of management that it was time to take a snapshot view of LbD, both in terms of providing a report back and concomitantly allowing the review process to act as a learning event.

The evaluation team started by asking the following sub set of questions:

1. What is the strategic context of LbD within the educational experience of students
2. What and how is LbD defined by its different stakeholders
3. What does LbD mean to the various people
4. How is it operationally manifested – how does it work?
5. What are the views of students, staff and management about LbD and how it seems to operate and meet learning needs – does it work?
6. What are the strengths of LbD and what are the areas for improvement
7. Is LbD creating new competences and are the components staying with Laurea?
8. What are the outcomes for students from LbD?
9. Is LbD the buzzword to use at Laurea – are people within Laurea just changing their language instead of changing their working (is the paradigm shift really happening or is it just talk?)
10. When does something turn into LbD?
11. Is LbD a good model for learning in higher education?
12. Does LbD realise (carry out in practise) Laurea's three tasks (teaching, R&D, regional development)?
13. Is LbD a competitive advantage to Laurea, and to Laurea's alumni?
14. Can LbD be the new culture in teaching and education for the cooperation between Laurea and universities?

Limits of the study

These are varied and deep questions, not all of which can be answered in a short duration evaluation study with a sharp and incisive quality. However, part of the purpose of the study was to raise questions that the faculty and staff of Laurea might themselves debate in the long dark winter nights of the arctic! To that extent we do not feel obliged that this report should necessarily answer everything.

But we probed as much as we could and the next section describes the methodology for the study by the evaluation team.

6 Methods

The evaluation was carried out by using published and printed material on the LbD model and semi-structured interviews and discussions with the developers of the model at Laurea as well as working life partners, students, alumni and stakeholders from Laurea University of Applied Sciences. The team brought with them their own extant knowledge, expertise, prior research and publications to the project.

Evaluation process

The evaluation process was carried out in a six month period between September 2007 and February 2008.

During this period we held a planning meeting to design and structure of the evaluation. The background purpose for the nature of the evaluation team was to seek diversity from a group of people who had experience of running action learning, active learning and other forms of learning programmes in entrepreneurship, culture training, engineering from Higher education institutions with a diverse national and local experience.

Two surveys were carried out for the evaluation team by students. One of the alumni and one of present students. These primary data points, alongside the interviews and reports and documents on pedagogical developments at Laurea formed the backbone of the findings. In the main we drew on semi-structured interviews with a range of stakeholders.



Figure 3: Evaluation process

Sample selection

We guided Laurea in setting up meetings to gain exposure to as diverse a set of views and experiences as we could. So visits were arranged to four campuses and students, staff and faculty from each of these campuses were asked to be interviewed. They were open interviews and responses were frank – both in positive and negative terms. Our purpose with the data gathering was to go for breadth rather than depth as the visits were short and any attempt at depth would require far greater resources than were available.

In order to retain confidentiality we have withheld the names of participants.

The interviews covered the following topics:

- Curriculum of certain courses
- Number of projects that formed any given project or time period
- Project support provided by the staff and faculty for the students
- How collaborative the projects were in their operational method
- Motivation of students and how this is achieved
- Size of groups that form around projects
- Management strategies for change from conventional approaches to LbD
- Internal marketing of LbD process
- Student awareness of what LbD means
- Methods of assessment
- The nature of the problems so for example are they big projects with meaning or are they simple tasks – their significance.
- Are students being challenged enough
- Learning by projects or by development. Is there a difference?
- Is LbD defined too narrowly – or at a higher values based model
- What does it mean at an implementation level

Interviewed Groups

The evaluation was based on semi-structured interviews and discussions with the developers of the model at Laurea as well as working life partners, students, alumni and shareholders from Laurea University of Applied Sciences. There were also site visits to Laurea Tikkurila (Thomas Madritsch), Laurea Otaniemi (Katalin Illes), Laurea Kerava (Anette Kolmos) and Laurea Leppävaara (Shailendra Vyakarnam) during the evaluation process.

7 Findings

We have drawn on the following sources to report on the findings:

- Taken from “Voices of students, staff, management”
- Practical Examples (Best Cases)
- Project Acquisition process
- Assessment process
- Training of staff

Conceptual framework

The adoption of LbD as a model begs many questions. At the top line is to ask how it is any different from other action or active learning approaches such as Project based learning (PBL).

Why LbD and not PBL?

During our first visit, the first question that arose was why formulate an own model and not use one of the models that already exists in the literature? Problem and project based learning (PBL) seems to be very much the same as the LbD model – so why this additional effort?

In the first instance there are differences among the LbD model practised at Laurea; the Problem Based model^{11, 12} and the Project Based model. The project and problem based models are briefly compared in the Table below.

¹¹ Aalborg and Roskilde, (Berthelsen, Illeris and Poulsen, 1977)

¹² McMaster, (Barrows and Tamblyn, 1980)

Project based model

Problem orientation
Interdisciplinarity required
Exemplary learning
Participant directed
Teams or group work

Problem based model

Problems form the focus and stimulus for learning
Problems are the vehicle for development of problem solving skills
New information is acquired through self directed learning
Student-centred
Small student groups
Teachers are facilitators/guides

Problem Based and Project Based models¹³ at McMaster, Maastricht, Aalborg and Roskilde are based on the same values and learning theories. Therefore, PBL is defined as a set of learning principles related to three approaches:

- **cognitive learning approach** means that learning is organized around *problems* and will be carried out as *projects*. This is a central principle for the development of student motivation. The problem is the starting point for the learning processes, it places learning in *context*, and secures that learning is based on the learner's *experience*. The fact that learning is project based means that it is a unique task involving complex and situated problem analysis and problem solving strategies.

- **contents approach** especially concerns *interdisciplinary* learning, which may span across traditional subject-related boundaries and methods. The learning practice is *exemplary* in the sense that learning outcome is exemplary to the overall objectives and supports the relation between *theory* and *practice* by the fact that the learning process involves an analytical approach using theory in the analysis of problems and problem solving methods.

- **collaborative learning approach** is team-based learning. The *team* learning aspect underpins the learning process as a social act where learning takes place through dialogue and communication. Furthermore, the students are learning

¹³ Graff and Kolmos (2007)

from each other through the sharing of knowledge and they learn to organize this process of collaborative learning. This approach also covers the concept of *participant-directed* learning, which indicates collective ownership of the learning process and, especially, the formulation of the problem.

Comparing LbD and PBL

There are major overlaps between the LbD values and the PBL models as well as learning principles – but there are also major differences.

Most obvious is the focus of the formulated principles, whereas the two PBL-models focus on the curriculum, the LbD model focus on the learning outcomes and the external relationships more than the curriculum. However, the formulation of the three different models have taken place at two different times serving different requirements from society.

Comparing the values of LbD and PBL, *authenticity* is the first value of LbD. In both models of PBL, there is no requirement of working with authentic problems. However, in the early formulation of the Danish models, there was a clear tendency that problems based or formulated at that time would include a societal aspect. Most projects at Aalborg and Roskilde University take their departure in real life problems, but not all. Sometimes the problems consist of theoretical questions and that is allowed and accepted as are real life problems. In that sense PBL has a broader scope compared to LbD.

Partnership - Community, openness and working together. Collaboration is a core aspect in PBL. However, partnership and network is a much broader concept compared to collaboration. So for this aspect, LbD seems to have a broader scope, although there is a tendency that the collaborative skills among students vanish.

Experiential nature is a concept in line with the PBL learning principles that has derived from the experiential learning theories. So in that sense, it seems to be the same.

Research and development orientation is more explicit in the LbD principles than in the PBL learning principles. In the PBL models and the PBL learning principles, research and investigation is in between the lines and more implicit. Open ended problems and projects are based on the investigative approach.

Creativity and *Innovativeness* are values that have come to the agenda during the last 10 years. Therefore, these values have not been formulated in the PBL

system. However, there is a lot of literature emphasising that PBL is a means to develop creativity and innovation¹⁴

Student and customer focus are formulated as LbD values – and the difference to PBL models and PBL learning principles are that LbD also includes the customer.

Social responsibility is the last value and it is to be found in a “weaker” version in the PBL learning principles as contextual learning. Very early definitions of the Danish PBL models stressed the social responsibility part, but during the 80’s these values have been transferred from the pedagogical approach itself to the content of the programme. E.g. in engineering today, social responsibility is a core learning objective.

Besides being able to directly compare the values of PBL with those of LbD, PBL models also stress: exemplarity, interdisciplinary learning and new teacher roles., all aspects that LbD implicitly covers.

Summing up the differences between LbD and PBL – the major difference is that PBL focus directly on the curriculum whereas LbD is formulated in more general terms. This also means that to be defined as a PBL institution would involve certain activities at the curriculum level, whereas LbD has a more open and flexible approach toward the curriculum level. The question is if this more open approach to the curriculum level will be sustainable in the long run?

However, the real strength of creating one’s own model is that the stakeholders take ownership of the model and its development processes. Ownership is a core value of democracy and motivation – so by developing an own model, the academic staff at Laurea might become more responsible in running it. But the disadvantage is that the model might be hard to explain to the world outside.

Implications for LbD a semester approach

There has been a huge change in the curriculum structure by merging smaller courses in order to aim the ideal of three courses per semester of each 10 ECTS. LbD is implemented at the course level – it is the single teacher that decides how much and how the principles will be utilised. The fact that there is now 10 ECTS means that teachers are working more together in teams. In figure 7, the change at the course level is illustrated.

¹⁴ Saywer, 2006.

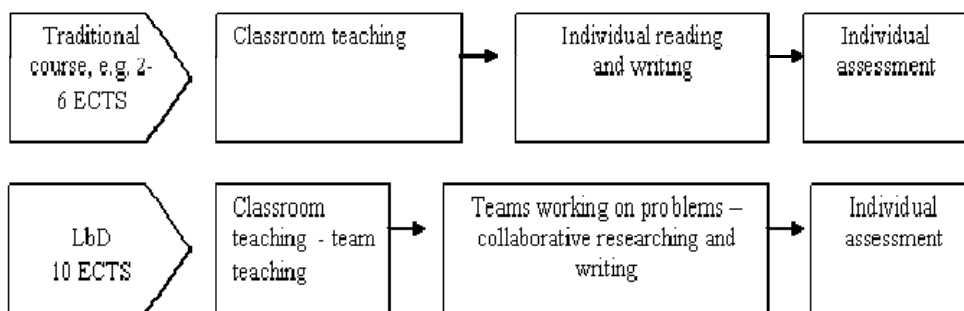


Figure 4: Course approach

The shift from a traditional model to an LbD model needed faculty to embrace:

- merging of courses,
- reduction in time for traditional lectures which involves reselection of content
- increase of time for students to on projects together
- team learning and behaviours for students
- assessment system is more or less the same at present

This illustration in figure 4 is a generalisation and it might not cover the true picture of the changes that have taken place at Laurea because the changes depend on the programme and the semester. However, interviews gave the impression that this could be some kind of present state.

Normally using the course approach for implementing more student-centred learning activities causes problems at the semester level. Students might work on two – three parallel projects at once – and if they are really engaged in what they are learning, they will work a lot and might risk exhaustion. This is what has happened at many institutions. Even for students working on two parallel projects, it might create tensions.

At present Laurea, is going through a transition phase so there is no common LbD model, making it somewhat confusing for students. There are perhaps three different approaches to LbD at Laurea and these are illustrated in Figure 5.

The diversity in approaches might be even more demanding for the students as they participate in all three learning models. On the other hand, three very different learning approached might also be very beneficial for learning, if the students are able to reflect on the variations among different styles.

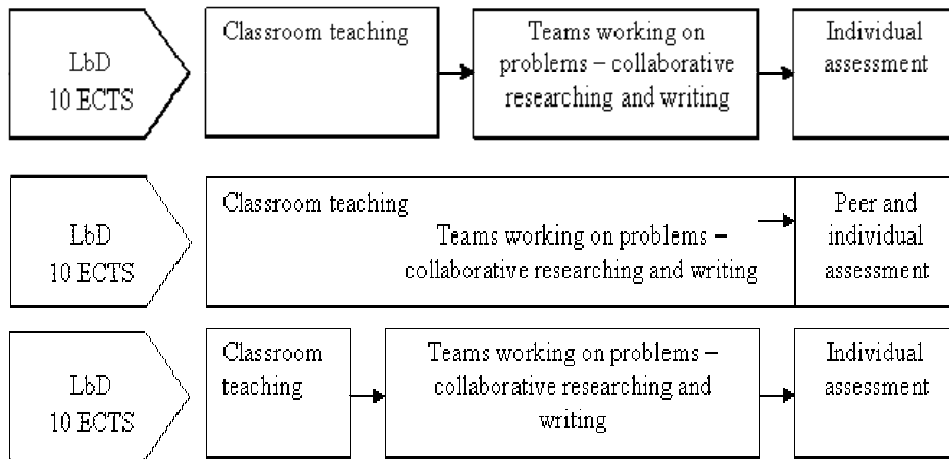


Figure 5: Semester approach based on three single courses

At Laurea Kerava, there are initiatives to develop a version 2 model of LbD with a much more comprehensive and integrated approach. For the development of curriculum models it is very important to have experiments running like this.

In Figure 6, below, we speculate on how the more comprehensive and integrated approach might appear.

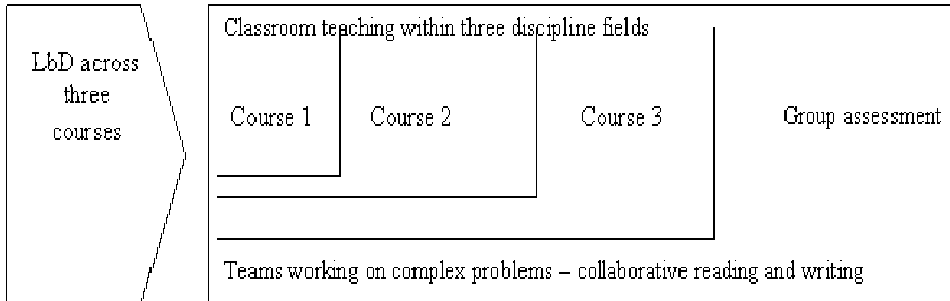


Figure 6: An alternative semester approach

At a small institution where academic staff might know each other, this might be a very beneficial way of developing the LbD model. However, there might also be the risk that the institution will become more heterogenic – with four groups of staff:

The innovators going on developing the LbD-model and taking risks

The positive group that has implemented LbD to an advanced level

The safe group that has implemented some LbD at an acceptable level

The reluctant group that has not implemented LbD yet.

Our evaluation cannot identify programmes, semesters or courses according to these four stages of development and this is not the point. The point is that these four categories can be an analytical tool for Laurea's future strategic development by 1) defining the four categories 2) analysing Laurea present state 3) setting goals for future development.

Students' progression through LbD during their studies

Progression has not really been mentioned or discussed during the evaluation visits. However, given the situation that Laurea is practising a heterogenic edu-

cational model and is about to establish a Masters programmes, it might be worth mentioning it here.

There are several models¹⁵ of progression of PBL during ones studies.

1. Single module approach – parallel system, which is basically the model that has been illustrated in figure 2 and 3. The point is that PBL is only implemented in isolated courses.

2. Patchwork PBL or shoestrings

Year 1	pbl	Lecture-based	pbl	Lecture-based	Lecture-based
Year 2	Lecture-based	Lecture-based	pbl	Lecture-based	Lecture-based
Year 3	Lecture-based	pbl	Lecture-based	Pbl	Lecture-based

The point with this model is that PBL is distributed all over the curriculum in the traditional system.

3. The funnel - or foundation approach

Year 1	Lecture-based learning
Year 2	Problem-solving – discipline projects
Year 3	Problem based learning – problem projects

The point with this model is that there is clear progression in the learning methods going from a more teacher centred approach to a more student centred and open approach.

4. The two strand approach

Year 1	PBL modules
	Mixed modules
Year 2	PBL modules
	Mixed modules

¹⁵ Savin-Baden and Major (2004) analysed educational practises for progression of PBL during the study.

The point with this model is to have parallel systems where the students participate in both traditional modules and PBL modules.

5. The integrated and complex approach

Year 1	Problem and project 1	Problem and project 2	Problem and project 3
Year 2	Problem and project 4		Problem and project 5
Year 3	Problem and project 6	Problem and project 7	

The point with this last model is that PBL is integrated in different ways into the curriculum.

Laurea's progression can not be put into any of these schemes. However, it is important that the educational programmes might benefit from trying to draw their own progression. Also at a visionary level, it will be useful to consider a more systemic LbD approach not only at the semester level, but certainly at the entire programme level.

8 Case studies

To bring a touch of reality, we provide a few case studies of the kinds of projects, and activities that take place under LbD.

Active Art as LbD Project - Laurea Tikkurila Unit

This rehabilitative day care project for two service houses in the city of Vantaa started with 6 students and 6 employees for 30 participants in the service houses. The project group started education part in February 2007 and the art sessions started late March so that each of five students groups had 8-9 sessions with elderly people during the spring. The aim of the project was to implement and develop Finnish version of clinical art method to improve psycho-social wellbeing of the elderly.¹⁶

Students and workers of home care services have had an active proactive role to develop active art method during the process. They created together the programs of the art sessions and reported the progress of each team. The teacher's role was to motivate students and search the knowledge at the beginning phase. Second they had to create the process with the projects partners and they had to guidance and supervision during the process.

LaureaLabs – Laurea Leppävaara Unit

In support of LbD at the Leppävaara campus there are 5 environments through which students are able to participate in LbD:

- **BarLaurea** = Student-run service unit which is a research based innovation environment and services development centre. Lunch Cafeteria for Laurea staff and students.
- **Beat and Flow** = Beat café and Flow À la carte Restaurant. Both are created and run by students. Flow offer for student's everyday practice and tools to answer customer service, product developing and economic challenge.

¹⁶ Niiniö, H. & Pusa, T. 9-2007

- **REDLabs** = stands for Research Education and Development Laboratories and it is specialized in ICT based service systems. REDLabs facilitate professional knowledge creation and rich interaction. The development chain goes from REDLabs through BarLaurea to customers. Externally oriented projects for companies and organisations in the region and in Europe are orchestrated through here
- **Data Communication Labs, TL -labra** = is a development environment specialized in data communications solutions
- **Business Excellence center, BEC** = Through this environment students also undertake projects for companies and have the opportunity to start their own ideas/businesses as part of the entrepreneurial training they receive.



Each of these environments brings the “external work experience” into the campus. These learning environments appear to be supplemented by standard lec-

tures and talks by experts, many of whom have prior industry experience and have now chosen to bring their skills and insights to the University.

Catering and Hospitality Management

This part of the operation is run by a very large number of students. For example in the catering area (in lunch restaurant, cafeteria and Alá carte) Laurea Lep-pävaara only has three full time staff members because students are trusted to manage the very large number of meals per day, right from initiation of the menu through to the final clearing up!

This kind of leveraging of the energy and talents means that students get a very full experience of the catering and hospitality environment.

An important outcome of this level of trust and practical experience is that students feel they can “do anything”. They dare to ask questions, try new ways of solving problems and are therefore much more prepared for working life than otherwise would be the case.

Staff can recognise the benefits of LbD, that it embeds learning in much more powerful ways than would be the case through conventional teaching.

Well Life Centre - Laurea Otaniemi Unit

The Well Life Centre, set up in 2003, is the crown jewel, of Laurea’s LbD initiative. It is in a purpose built modern environment with meeting rooms, laboratories, workshops, a library and a large auditorium. It also provides home to a Caring TV broadcasting centre. There are nine organizations present with offices and seven further organizations are part of the visiting partners network. The WLC arose as a response to the rapidly aging population of Finland, with increasing demands on social and welfare services.

With escalating costs in service provision there has been a need to find innovative solutions based on integrating social, technological, and educational and the public services. The Centre takes a holistic view of human beings in order to frame its services and activities.

The Centre trains about 400 students in physiotherapy and nursing. They offer undergraduate courses and an MA in Family Nursing and an MA in Innovative Leadership.

There are four groups of participants in this initiative, all working to an LbD framework:

1. Professional actors (Educators, students, professionals, entrepreneurs)
2. Welfare services (service providers, products and processes)
3. Welfare researchers (R&D, laboratories, studies and thesis work)
4. Welfare clients (End customers, public, private and third sector)

Product development is based on research triggered by the real demand of the welfare sector and customers. Students, working in teams, are part of the various project teams and they actively contribute to new product development and testing new products and services.

The WLC has a strong research focus and provides direction for the development of the whole service system in the welfare sector. Currently there are two major research paths. They focus on 'Safe and Secure Living' and 'Empowering work' related issues.

There are four different laboratories in WLC.

- Activity Lab is an evaluation and testing laboratory of capacity where one can evaluate and measure individual abilities, movements, free transition and prowess.
- Habitat Lab is a product development laboratory for living at home. As a very convertible home-like environment it offers many possibilities for testing different well-being services and new models of operation in practice.
- Lablife is for process recognition and modeling where you can design and model different processes with the support of a high-tech process modeling environment.
- One to one lab is for full scale research of home environments and other initiatives.

The Caring TV is an experiment that provides growing number of services for individuals who are isolated in their homes. It is an ongoing development that currently offers support programmes for rehabilitation, health, nutrition, mental health, social services and habitation.

One of the evaluators had the opportunity to observe an exercise class broadcast on Caring TV. The instructor demonstrated the exercises. People in their homes did not only see the instructor but had an opportunity to comment, ask

questions and give feed back. It was a lighthearted, interactive session. The system enables members of the network discussion with each other as well.

Students voices

Some students we met did not appear to know about LbD. From their point of view, even some faculty were not entirely familiar with LbD. At a headline level they perceive it as a “very open ended” project based activity, in which students seem to make up their own ground rules and through which staff also have to make decisions in a very open ended way. The most frequently heard response to almost any question posed by the review team was “it depends”!

First year students in particular were not familiar with the aim and structure of the LbD method and this seemed to cause some concern among students in the early part of their courses.

Students mentioned there is no direct Finnish translation for LbD and asked for more of an explanation. They found it really hard to understand the Laurea values and ideology. Several students claim that they are not sure how to formulate LbD values.

Some of the work we noticed from students did not appear very challenging, because they were reporting on their portfolios and peer assessed reports regarding their skills. Most of the evaluations are group evaluation with all advantages and disadvantages.

At Laurea in a class of 30-40 students, the normal way of starting projects is that the staff has a contact with an external partner and they formulate a way of presenting the problem. e.g. in tourism, it could be the case of how to persuade more of the “transfer passengers” from Helsinki airport to spend a couple of days in Finland before going on to their final destinations. As a problem statement, this is a great start. What might be risky from a learning point of view, is that this is the problem statement for all groups of 2 - 3 students and that they do not really get in personal contact with the end user/the authentic persons that need ideas for development. It could be therefore that students do not get engaged and do what little is required and by sharing knowledge across groups, they skate by.

Students are able choose the project and their role in the project. As a project leader they earn more credits. However there are some real challenges with respect to group sizes. Normally the group size is around 2-4 students. This indicates that the students do not really experience comprehensive collaborative

processes as it is much easier to collaborate in a group of three persons compared to a group of 7 persons.

Students are very satisfied with some projects – they provide a good chance to gather practical experience. They like the practical connections with the outside real world outside of the University and also seem to learn from each other.

Where they had a good experience of understanding the ambiguity of a broadly briefed project, interaction with real world clients and could see the conclusion of their projects, they were naturally very satisfied.

Where they really could not understand the openness of LbD and found the open-ended approach to guidance from their tutors unclear – they really did not like it. In other words their learning styles were perhaps not in tune with LbD.

And finally students, faculty and the evaluation team all found the methods of assessment to be in its infancy and called for an increased level of evaluation.¹⁷

¹⁸

Current Students' learning experience

Students train up to 3 and a half years for a BA degree. During this period they accumulate 210 credits one third of which is given for practice based education. Students spend about 21 weeks in real work environment. These practical sessions vary in length and nature. Some for example start with a one week observation when a student follows an experienced practitioner. When students have more knowledge they spend longer periods in the workplace and are expected to fulfill increasingly demanding jobs. By the end of some of the courses students spend up to 6 weeks working in junior, full time positions.

One of the anomalies seen by the evaluation team is that many students reported that they spent perhaps 30 – 35 hours per week on their studies including their projects. This is in sharp contrast to PBL based learning, Normally in a PBL system where students go out to companies, they get so motivated that they work much more than expected. At Laurea all project do have to be authentic, therefore it was strange that the same pattern as in PBL institutions was not really present.

¹⁷ Early-phase feedback Questionnaire spring 2007 Anna Pohjalainen
anna.pohjalainen@laurea.fi

¹⁸ Auvinen P., Mäkelä J., Peisa S., Curriculum evaluation – Final report, Laurea 2007

The practical sessions and work experience are enjoyable and relevant, visiting a range of relevant work environments. They gain useful insights into the demands of working life and organizational cultures.

Students have the freedom to set up study groups, book a room, put a study programme together, divide research tasks, meet regularly and learn from each other to improve their knowledge in a particular subject.

First year students can attend the workshops and presentations of third year students and they also have the opportunity to work as research assistants or take on other roles in real life projects. So they learn from observation, interaction and early practice.

Alumni

Most of the alumni did study with the traditional system. Some of them had experienced LbD in the last two years of study. They had very good feedback from the practice. Otherwise there is also a lack of information regarding LbD method.

Some of them thought LbD was just new wording for project oriented learning!

During the interviews Laurea graduates commented on the merits of LbD in the following way:

- “you are developing yourself all the time”
- “you feel trusted by your teachers”
- “you have to freedom to take decisions”
- “you build your self-confidence”
- “you learn to work with others”
- “you gain practical, problem solving skills”
- “you develop a survival skill that enables you to work through difficulties and trust your abilities to find solutions even when you do not have an easy answer straight away.”
- “When you graduate and start working for a company you hit the ground running because you have already worked through a number of real life projects and you have the know how and the confidence”.

However they have also admitted that initially they felt lost, there was a lot of chaos, they did not know where to start and some of their peers could not warm to the method at all. Those who ‘survived’ the experience developed some use-

ful skill and competences and now they embark on new projects with an inner knowing that somehow they will find solutions and they will succeed in the end.

As part of this review, Laurea carried out a survey among its students. The feedback from the survey was very similar in tone to what we learnt from interviews. This alumni survey was carried out in November 2007.¹⁹ The survey concentrates on competence development and compares the results among alumni who have taken part in LbD activities during their studies at Laurea and those who have not. Despite the small number of students involved in LbD (12 of 122 responses) the findings regarding the success of LbD are printed out in the following chart.²⁰

¹⁹ Pohjalainen A., Saviaho R., Alumni survey 2007: The effectiveness of LbD

²⁰ Pohjalainen A., Saviaho R., Alumni survey 2007: The effectiveness of LbD

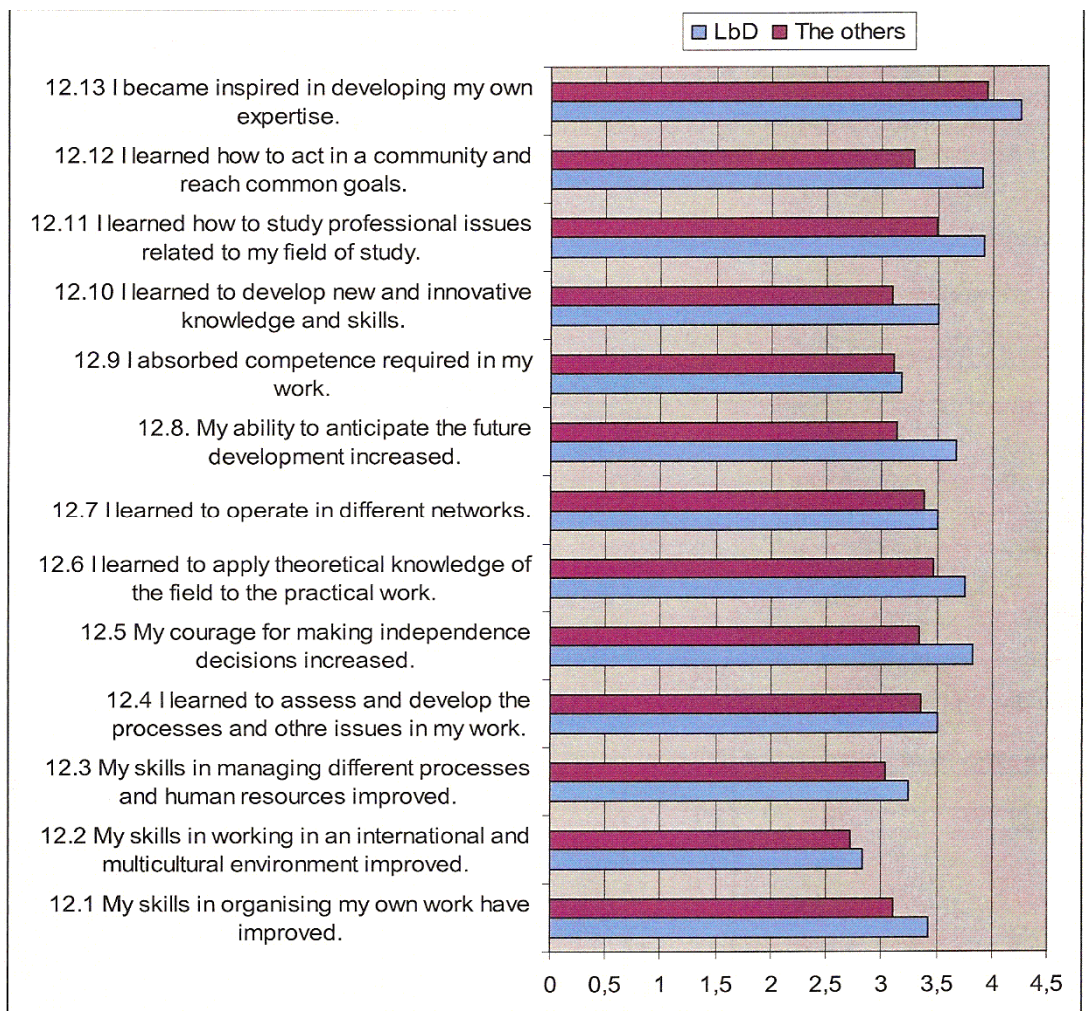


Figure 7: Alumni Survey 2007

(Note – LbD is in its early stages – so we expect fewer replies to a survey)

Staff voices

For the LbD method faculty have to develop a lot of additional skills for their new roles. Therefore an individual personnel development plan was necessary.²¹ It seems that two thirds of the faculty are using the LbD method.

²¹ See Outi Kallioinen 2007, Laurea's personnel development plan 2007-2008

Our impression is that faculty are having to unlearn their present methods, learn all about the more holistic approach to competence development and manage the expectations of students and the Institution.

In essence, faculty are expected to develop the competences shown in Figure 6, if they are to have a satisfactory experience of being effective as tutors who are learning through the LbD method. As it can be seen – this is a very thoroughly thought through model and some of the challenges we found in the evaluation was in its implementation.

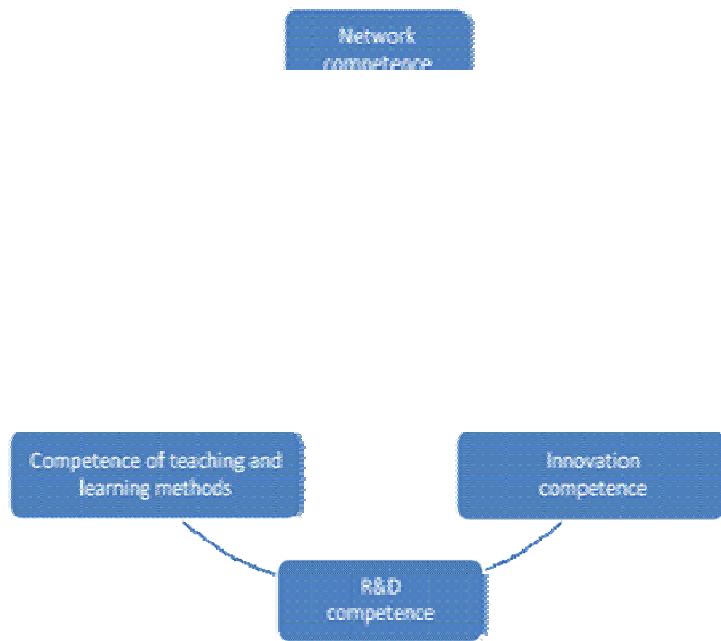


Figure 8: Necessary competences of LbD teachers²²

Some faculty had difficulty to find projects and they sought further support in this acquisition phase. Where are the benefits for lecturers who start with LbD?

²² See Outi Kallioinen 2007, LbD teacherhood, chart of competences

According to the curriculum evaluation²³ there is a need to increase the teacher's know-how to implement LbD in practice (Complacency index 50%). But also the active feedback about the learning efforts of students should be improved (Complacency index 52%).

Benefits and challenges as seen by staff

The benefits as follows:

- Developing the LbD model through personal research and realizing that R&D is the glue that can hold universities and external stakeholders together.
- Getting EU and Finnish Research funding, becoming a centre of excellence and a role model institution for other Universities of Applied Sciences in Finland and abroad.
- Inspiring students and staff to continue their education and do MAs and PhDs
- Some staff members were so involved in the development of the LbD that they decided to enroll into a relevant PhD programme.
- working in teams, fantastic work environment for the LbD enthusiasts
- Learning from students
- Holistic view of work in some units there is a positive, innovative spirit and an open door policy

Some of the challenges:

- There is a noticeable divide between staff members who have a doctorate and those who have not. Some people feel second class without a PhD
- More time would be necessary for planning activities with students
- More networking opportunities to discuss specific LbD related challenges and learn from the experience of others
- Get people to believe in the value of research, particularly applied research – there are still a number of cynics around Laurea

²³ See Auvinen P., Mäkelä J., Peisa S., Curriculum evaluation – Final report, Laurea 2007

- It is difficult to change people’s attitude and inspire them to try new things in their teaching
- Some of those who are not part of the LbD initiative envy the success of those who are the champions of this initiative

Faculty Development in support of LbD

Laurea has put in place a broad based training programme for its faculty so that it can learn how to implement LbD. Some of this work has been done in conjunction with the Faculty of Education at Tampere University.

Specifically, Laurea has arranged two Personal Development programmes for teachers, related to the new competence based curriculum and the LbD learning model. So far the numbers are 26 on the first (2004-06) and a further 18 on the second – which started in 2007 and will continue till 2009.

In addition there have been several seminars or training occasions through 2007.

Number of participants	Seminar title
11	LbD workshop series - introductions
25	Seminar in March 2007
50 in all	Competence evaluation of students – total of 3 workshops/seminars
58	Portfolio training
24 participants in each	Three workshops on new curricula
130	Seminar on LbD in October 2007

Participation in faculty training for LbD awareness and implementation

The fundamental challenge with LbD is to change the view of practicing academics about teaching and learning. LbD is based on the broad philosophy that all stakeholders of education are LEARNERS. Learning happens at all levels and we all learn by developing ourselves throughout our lives.

As an abstract concept it is easy to agree with this statement. However when academics are asked to give up the ‘safety’ and ‘importance’ of teaching in the traditional sense and are asked to join the ranks of students as co-learners the response will not be all positive. This challenge requires a high level of professional confidence, personal integrity and a genuine desire to grow from the individual academic.

Certain subjects and professions such as nursing, physiotherapy and hospitality management lend themselves more easily and in a meaningful way to LbD and others might be more suitable for a more traditional methods of learning.

LbD could serve as a starting point for faculty members to critically review their current teaching methodologies and identify new ways of delivery as and when appropriate. Such a review will create debate and discussion and will contribute to the community building and dialogue between the different groups within Laurea.

Voice of stakeholders and Managers

As we set out the findings from our interviews with managers, stakeholders and other partners, we felt it would help to include a conceptual backdrop to the immense changes that LbD implies for the Organisation.

The management seems to have taken quite a difficult path in wanting to implement LbD right across the campuses all in one sweeping change. Although implementation is patchy, the expectation on the whole appears to be to go for one single phase of implementation with all its attendant risks.

Voice of stakeholders

Laurea enjoys the support of a large network of public and private sector organizations.

The evaluation team had the opportunity to meet some of the stakeholder representatives including Helsinki University of Technology, Espoo City Council and Helsinki Region Chamber of Commerce. All representatives were very positive and spoke highly of the LbD initiative.

The stakeholders' prime interests are regional development and providing highly trained individuals for the labour market. Laurea is already making a good contribution to these areas and the LbD initiative with its focus on practical experience has the potential to increase Laurea's impact not only on the regional economy but also further a field.

Although specific collaborative initiatives were mentioned between Laurea students and stakeholder organizations the evaluation team felt that there is a great unused potential for development in this field. And, as the LbD experience is

scaled up we expect further developments with respect to implementing on cross-stakeholder networks.

Voice of Managers

Through our meetings and interviews with managers at Laurea, it became very clear that changes were starting to be seen. In terms of the upbeat perspectives of the implementation of LbD as seen by managers:

- The attitude to teaching is changing. The teacher is more of a partner in the learning process together with the company and the students. The focus is on learning. Participants learn together in the process.
- The focus is on quality and co-creation of new understandings and practitioner knowledge. Everybody is adding value in their own way according to their best knowledge. Authenticity is encouraged and expected.
- The focus is on fostering a learning culture, creating a joyful learning experience. We have a leadership by development programme where lecturers are invited to share their experiences with each other. We have an innovation platform for staff to recreate the LbD model in their own work. It requires a change of attitude to teaching and learning.
- This is management by vision and empowerment rather than management by command. Laurea has a flat, democratic system where students and experts work together in partnership.
- The management tells students and teachers the 'why' and the 'what' but they have the freedom in deciding the 'how'.
- The management has a strategic intent and they intend to create the spirit and the flow of education. They work with elastic agreements. They do have a traditional evaluation process. They regularly evaluate results however they do not formulate the results before the process.
- One of the managers suggested that the difference between problem based learning and LbD is that with LbD they go beyond the problem and try to understand the underlying current and focus on the root issues.
- When required managers provide coaching for individuals who want to develop their own way of LbD. The LbD model is disseminated across Finland to all universities of applied sciences and they are encouraged to tailor the concept to the local needs and culture.

- Managers aspire to focus on the self-actualization of the individuals (students, lecturers and employees)

“Learning is invariably based in the learner’s own active effort with respect to his/her learning. Nobody else can learn matters for someone else: rather, learning is a personal matter. Bringing matters to mind and remembering them by heart as such is not yet really learning in general. It is only when matters begin to assume significance within the learner’s own structures of meaning that learning can begin.” (Outi Kallioinen, 2007 p.6.)

We gathered broader remarks from managers and assimilated these with comments from faculty. The next set of findings relate to our broader discussions.

Laurea is undergoing a change management process with LbD in an early phase of implementation. According to the curriculum evaluation²⁴ there is big need to scale-up the organisation of the curriculum reform process²⁵.

It was also clear that the management had started to change from a more traditional hierarchical style to a network based style which some of the interviewees called “management by walking around”. Some of the management team members kept saying that the coffee room was the most important place for change. What they have done is to initiate change from the bottom and let academic staff formulate an educational model. Formulation of the educational model instills ownership and motivation, which are core values of Scandinavian democracy – and as an outsider reflecting the change process, it is amazing that the management team really has managed to step back, facilitate whenever needed and foster motivation and enthusiasm among staff.

In order to understand these kinds of processes, one has to experience the working environment at the institution. During five days evaluation visit, trust was a concept that was repeated often, not only by academic staff, but certainly by students.

“We can do this because they trust us”.

²⁴ See Auvinen P., Mäkelä J., Peisa S., Curriculum evaluation – Final report, Laurea 2007

²⁵ For the question “Implementation of curriculum reform has been well organized”, the Complacency index was just 28%. There is also a need to involve the regions’ work life representatives much more as an active partner for LbD projects (Complacency index 45%).

We also found that even while Laurea was implementing its own vision, further external influences have impacted on the changes. One of these is that Government is reviewing the role of Universities of Applied Sciences and the economics of the way they are organised. Meanwhile Finnish society has to adapt to fulfil the Bologna Process of the European Union and cope with ever increasing demands on industry from globalisation and the wider integration of Europe.

The disadvantages of having to cope with all these changes, simultaneously is that staff get tired. Although research indicates²⁶ that as many as 20% of staff may be reluctant to implement change, we did not meet any in our short evaluation study.

We wanted to better understand how, if at all, Laurea's change experience fitted with a given model for institutional change.

In the Table below we map Laurea's progress on an eight phase model proposed by Kotter²⁷

Following page. Table1. Eight steps to transforming your organization (Kotter, 1995)

²⁶ Starkey, 2006

²⁷ Kotter (1995)

Phases	Defining the phase	Laurea's experience
1	Establishing a Sense of Urgency	The sense of urgency came from the transformation of Finnish Universities of Applied Science. But at the same time there was an internal movement for improving the pedagogical model. We did not clearly pick up on this sense of urgency, other than in a few people.
2	Forming a Powerful Guiding Coalition	However, the interviews showed that a powerful coalition was established among the management team and academic staff and they started out by creating a set of values.
3	Creating a Vision	There is a sense of vision for turning Laurea into a centre for excellence – a recognition that has already been recognised. The team takes a great deal of pride in positioning Laurea as a role model for LbD.
4	Communicating the Vision	At a high level, Laurea has certainly made progress very rapidly – almost in an evangelical sense. There is a widespread activity needed to broaden the base of understanding of LbD.
5	Empowering Others to Act on the Vision	Laurea's management team also facilitated this change process by giving freedom to individual staff members to set the pace of change within their own courses. The only boundary being that there must be external users involved in the students' projects – although in some cases this was based on Laurea colleagues themselves asking for projects to be carried out. In other words it would be more accurate to describe the requirement as ensuring "Third party" involvement in setting a project.
6	Planning for and Creating Short-Term Wins	The LbD enthusiasts have certainly set themselves short term wins and there is sufficient evidence now that LbD has provided benefits to students, employers and others. These role models can now be used in the next phase of change management.
7	Consolidating Improvements and Producing Still More Change	Laurea has consolidated the first improvements and there are still more change going on. There are already further developed models where the projects are much more comprehensive.
8	Institutionalizing New Approaches	However, maybe Laurea has not really reached the level 8 of institutionalising. This is the very important phase of sustainability going from individuals' enthusiasm to a broader consensus. In other words moving from individual internalisation to institution level internalisation in processes and systems.

There are many challenges yet for LbD, among them it is possible to study at Laurea without joining LbD courses. That means there is still a traditional trajectory for students. This can be reasonable at a semester level, but running a model as LbD should implicitly indicate that all graduates have experienced it during a programme.

Reality of projects

Laurea is at an early stage of building experience and track record in securing the right calibre of external projects, engaging the imagination of companies and local organisations and providing the right level of guidance that can then allow the expectations to be met.

There is a shortage of real life projects; so we heard about two coping strategies: the use of internal projects conducted for faculty or Departments of the University and/or putting many students in teams onto the same overall project.

Because projects are based on real world problems it is harder to “legislate” for a fit with the competences that are meant to be learnt from the project. So at the moment it is being left somewhat to chance. This is a complex area of orchestration between the nature of projects that are secured and the actual fit with a competence based learning model. Laurea seems to cover a broad range of more specific competences and skills – and it is always a choice of the label and the content of a competence. Seen from outside, one might wonder where competences such as collaboration together with project management are? It is formulated as a sub category to the network competence. Is this sufficient? For example network competence includes more communication and ability to establish contacts – not necessarily integration with collaboration. Collaboration is a really important competence related to several of the other competences as well, such as innovation and globalisation. Research shows that innovation is no longer built on individual knowledge, but much more collaborative knowledge and now even collaborative knowledge in a globalized world.²⁸

Companies are not always engaged after they have agreed to projects, perhaps because they do not anticipate real value from the projects and/or because they find too many students are involved and therefore experience difficulty to provide support in terms of information, guidance etc.,

Having said that, the stakeholders we met with were all very positive about the direction that Laurea was taking and wanted to be supportive, with increased experience and exposure to LbD.

²⁸ Saywer, 2007.

Assessments

The challenge of LbD is connected with how to assess the acquisition and progression through the two sets of competences; generic and expert. In conventional forms of higher education the method of assessment is based on whether or not students have acquired the knowledge they have been “taught”. In the case of Laurea, the assessment is based on measuring progress on “outcomes” – can students “do things” and have they modified their employability behaviours?

An additional level of complexity is that students are expected to work in groups, much as they do in the real world. But – how can we measure – in the interests of fairness, transparency and rigour that students have learnt at an individual level when the project learning methodology is based on groups, as is the assessment?

The present system is as follows:

Approx 50% from group based projects and 50% from exam results.

Level 1 = 33% = passmark

Level 2 = 40% ish

Level 3 = 50% - 70%

Level 4 = 70% - 89%

Level 5 = 90% and above

This calibrates onto the level of competences that the students are thought to have achieved.

But as far as we could tell this was not a uniform system across subjects and 50% of the marks that came from group assignments meant that a student who coasted along and did nothing could pick up marks up to Level 3. There was some evidence of deep resentment from some of the harder working students and is clearly a problem area that needs resolution.

We also noted some innovative assessment methods. One example is when students are invited to discuss different subject related questions in a group. The discussion is video recorded and the 2-3 lecturers/experts who worked on that particular project with the students analyse the video tape, discuss the individual contributions and agree on an individual mark for each group member.

Another example that the evaluators heard about was a team preparation for an exam. Team members had to study for the exam together and on the day of the exam the lecturer selected one student who then had to sit the exam on behalf of the whole team. It puts a lot of responsibility on individual students because the whole team gets the mark that the individual student receives. This approach puts a lot of pressure on group members to study hard and share information with each other so that each member has an equally high level of knowledge about the subject in question by the time they go to sit the exam.

9 Discussion

In this brief discussion we examine some of the strengths and challenges of LbD and speculate on some of the wider issues.

Strengths of LbD

When it works for the students, there is no doubt that LbD has very positive influences on students. These are harder to quantify than to describe. In the sense that the main outcomes are to do with:

The growth in independent thought

Self-confidence

Greater employability

Raised levels of aspiration

Highly experiential

Open learning environment and platform

Early experience of personal responsibility for results and duty to colleagues

Early experience of people relying on you

Equips you to see the whole picture

Early contact with companies and organisations

The process puts together firms, teachers and students.

There are real life problems to solve, allowing students to acquire investigative skills in independent ways.

The atmosphere is one of equals

LbD requires the ability to lead people rather than manage events.

Some of the challenges of LbD

The newer and younger faculty are learning new ways of coping with LbD teaching and have to re-write their own experiences and adapt to this model. There is a very large personal impact on individuals in having to learn (or even re-learn) this methodology of teaching.

LbD does not fit everything at Laurea, so it is sometimes confusing to say that the emphasis is on LbD and yet have curricula that are based on conventional methods and work as well. In other words LbD can be seen to be “over-sold.”

LbD is strongly based on the principle of developing competences, both generic and specific and yet we do not have clear ways of assessing student progress against these competences. The grading system is based on a 1 – 5 scale and can seem subjective.

The lack of clarity around the assessment system is known to create stresses for both students and staff.

LbD relies hugely on group commitment – which is a double edged sword. On the one hand it teaches the sense of duty to others and yet if it does not work, it creates huge levels of friction within groups. There is also a need to be able to share knowledge in a more systematic way. At present much of this happens through a transfer of tacit knowledge depending on memberships of groups and networks.

LbD is a function of strong supervision within a learning process rather than in ensuring that content is learnt. This means there is huge trust placed in the learning process, that it will deliver the desired competences.

There is a major opportunity cost of time, because allowing students to learn for themselves takes much longer than providing them with knowledge inputs and short cuts. Identifying the optimum ratio of direct input and independent student initiatives could be the next step of integrating LbD into traditional education. It could also start a constructive dialogue between the pro and against LbD groups in Laurea.

At the moment it seems that the more mature students are more open to LbD than some of the faculty without work experience outside the academic environment especially as the latter find it somewhat daunting to carry out what seems like a 90 degree turn in the way they are being asked to teach, when compared to methods they are used to.

This change of direction, in turn, feels like a major challenge to ones self-identity as a “teacher” as it challenges “teachership”.

The major problem is how do we measure generic competences? In other words when do Laurea know they have delivered students that have achieved what Laurea set out to achieve? As Laurea make an investment into the life long development of the students only a longitudinal study could give an indication of the level of success. How will these students perform in companies, and in society as a whole? Will they pass the test of life and pass the test of ethical behaviour, innovation etc. with flying colours? No one knows at this point.

Employability may be a convenient measure – but how much of this is dependent on LbD? Bearing in mind employability is also going to be a function of the kinds of students recruited into Laurea, the general economic climate for employment and competitive activity by other Institutions of Higher Education. This debate raises a further question: Is there a super ordinate goal? Is LbD a means to an end or an end in itself?

LbD at one level appears to be an incremental shift of emphasis from a didactic teaching method with some level of project based activity. At another level when one listens to the “evangelists” and sees some of the most mature development of LbD – it is clearly much more than project based learning because there has been a deliberate level of ambiguity built into the implementation of the whole process. It seems that the ambiguity is celebrated by some (not by many) because it allows students to experience what the world of work is really like; to try and solve problems using their own initiative and to find a level of self confidence and aspiration that might not be possible through the more conventional methods that are known and loved in higher education institutions.

But these overall goals – also produce a set of challenges for implementation, primarily with managing ambiguity and living with dichotomies. At more down to earth levels we can also see that LbD has to live side by side with other approaches and these co-operative relationships need to be understood at all levels. The third challenge appears to be one of clarity of communication to ensure that LbD is understood at an implementation level by staff, students and management teams.

Managing ambiguity

Because LbD is open ended and is project based, there are no rules/guidelines about what can be learnt/taught. This makes the system highly “trust” dependent and challenging with respect to:

- Project definition in terms of scope and scale
- Group dynamics
- Methods of assessment , about which much has already been said
- Feedback is variable in style, content because the guidelines are not known or clear

Managing Dichotomies

It appears to us, that one of the aspects of change management is that all the individuals involved in the process need, at various stages, to be able to live with or even manage dichotomies. So far we can see that in moving from a typical higher education model – of being content focused to becoming more focused on learning processes – there are dichotomies, all of which take a lot of getting used to.

Content focus

Traditional didactic methods
Telling students the answers

Managed by experts
Wisdom of the “systems”
Faculty reviews work submitted
Clarity of deliverables
Faculty rewards based on publications
Can’t admit lack of knowledge
Keen interest in knowledge creation

Process focus

Open LbD process
Coaching the students to find the answers

Self managed groups
Wisdom of the crowds (groups)
Peer reviews work submitted
Ambiguous deliverables
Faculty rewards based on ability to run LbD process??
OK to admit lack of knowledge
Keen interest in student empowerment

Managing communication across the Institution

Because the system is so open and flexible, it has become very complex to describe and with each new programme the messages get ever more complex to describe and operationalise.

A frequently heard response to our questions was “it depends” and nearly lead to this term being the title of the report!

Even open systems need tight boundaries, for example the Universe itself relies on some tight rules that govern gravity and the passage of time!

10 Recommendations

We make five main recommendations, which then transfer into a number of more detailed actions.

The LbD model

- The LbD model needs to be made more transparent.
- LbD is complex in all its forms and simplicity needs to be at the forefront of execution and communication.
- The present model will need to be institutionalised to be sustainable in the long term, so a systems approach will be required for the development of the curriculum at both a semester level and for the bigger picture of the whole period of study.
- Review the definitions and precision of the competences on collaboration/project management to reflect the experiences of students. They may be learning competences that are not in the present “list”. This specific action will also apply to other areas, such as entrepreneurial skills.

Developing LbD mode

- Continue and expand the education of tutors/facilitators in the fine grained skills they need to effectively implement LbD.
- Set up courses/activities to facilitate students’ collaboration and project management.
- Experiment with the size of the groups – to see how the dynamics of group sizes might be affecting learning, assessments, motivation etc.,
- There is a greater need to provide more support in the early definitional stages of a project - especially for Year 1 students.

Projects

- In the spirit of Learning incrementally across the competences, one possible solution to bring order to the process is suggested in the Table below.

1 st year carry out internal projects	Provides methods, early learning to work in groups etc.,
2 nd year carry out University projects	Cross fertilisation, broader knowledge and competence
3 rd year carry out company/external projects	Meet real life expectations, everyone learns more (MBA like experience) – the application of prior knowledge.

- There is a need for more projects from the outside – to balance the numbers of projects supplied from within the University.
- Let the student work on more comprehensive projects – to provide a more meaningful and challenging learning experience. This is important to raise aspirational levels of students.

Assessment method

- Change the assessment system in accordance with the educational objectives. Much thought has to be given to this area of Laurea's LbD approach. The risks to the Institution of an ambiguous system of assessment are too high. The approach to measuring competences acquired rather than simply passing exams of what has been "memorised" is a major innovative departure for a University and this can and needs to be strengthened to provide real credibility for scaling up the model.

Project management and marketing

- There is a need for professional project acquisition, perhaps by faculty who have good contacts, because there is a need for a greater supply of meaningful and authentic projects
- Projects may be more valued by clients if they are charged for. Charging may also permit the University to recover some of its costs.
- The internal and external marketing of projects should be improved.

- It is necessary to improve the branding of LbD to all target groups to get a lot of applications of new students, to motivate lecturers and help them to acquire new projects.
- Therefore projects partners need information regarding LbD projects and the efforts of LbD educated students.

For LbD to continue its present trajectory, Laurea can build on the virtuous cycle of activity drawing on this study on on-going internal discussions in the highly democratic environment, where it seems there is a very strong shared vision of wanting to Make a Difference and which draws on the strong set of values of Trust.

We have enjoyed carrying out this evaluation review of LbD. There is a lot to learn and we hope to have captured, fairly, all the lessons that have been learnt and that we have shared these effectively.

Appendix 1. Documents used in the review

There has been a monumental amount of work done on the design and development of LbD. Here is a list of some of the documentation we reviewed. These were available both in hard copy and via an intranet for the project (Optima).

Kallioinen, O. (editor): Competence-based curriculum. Description of Laurea's curriculum reform 2004-2006

Kallioinen, O. Laurea's generic competences compared with European competence definitions, Paper presented at ECER 2007 in Ghent Belgium.

Pedagogical strategy 2007. Board of Laurea

Tautila, V.: Learning Business by Doing Real Business, Proceedings of the 18th Annual SPACE-conference, 21.-24.3.2007

Piirainen, A. & Raij, K. 2006. Coping at Home. Internal Article on Coping at Home project. Refurbishing the elderly care : evidences and theoretical targets. Kansei Fukushi Research Center, Tohoku Fukushi University.

Centre of Expertise Proposal: Proposal to the Finnish Higher Education Evaluation Council. A good overview of Laurea's activities regarding the three university of applied sciences tasks.

Raij, K. Description of the idea behind Well Life Center. Well Life Center as an example of Finnish professional higher education.

Auvinen, P. Mäkelä, J. Peisa, S.: Curriculum Evaluation A translated summary of results from evaluation done in Finnish on Laurea's curriculum. 2007.

Pirnes, H.: Learning by Developing – encouraging innovativeness in the joint Japanese-Finnish elderly care research and development project. Article on Active project.

Hakkarainen, K.P.J., Palonen, T. Paavola, S. Lehtinen, E. 2004. Communities of Network Expertise. Advances in Learning and instruction series. Background thinking for the development of LbD.

Fränti, M. & Pirinen, R. 2005. Learning by Developing in the Integrative Learning Environments of BarLaurea and REDLabs. A publication on the ideology behind Laurea's integrative learning environments. Helsinki: Edita Prima.

Stigell, J. & Fränti, M.: Staff and student work schedules. 2007.

Degree Programme implementation plans: Information on curriculum implementation. 2007.

Pohjalainen, A. & Saviaho, R. Alumni questionnaire A short questionnaire to alumni on competences they have acquired during their studies at Laurea (in the LbD way) and how these competences affected their employability. 2007.

Early-phase feedback questionnaire. Spring 2007. Pohjalainen, A.

Raij, K. 2007. Learning by Developing. A publication A 58 on the LbD model. Helsinki: Edita Prima.

Laurea Facts. 2007. A guide for Laurea staff and students, information on e.g. exam procedures.

Ministry of Education. 2007. Finnish Education: Extensive information and descriptions on the Finnish higher education system.

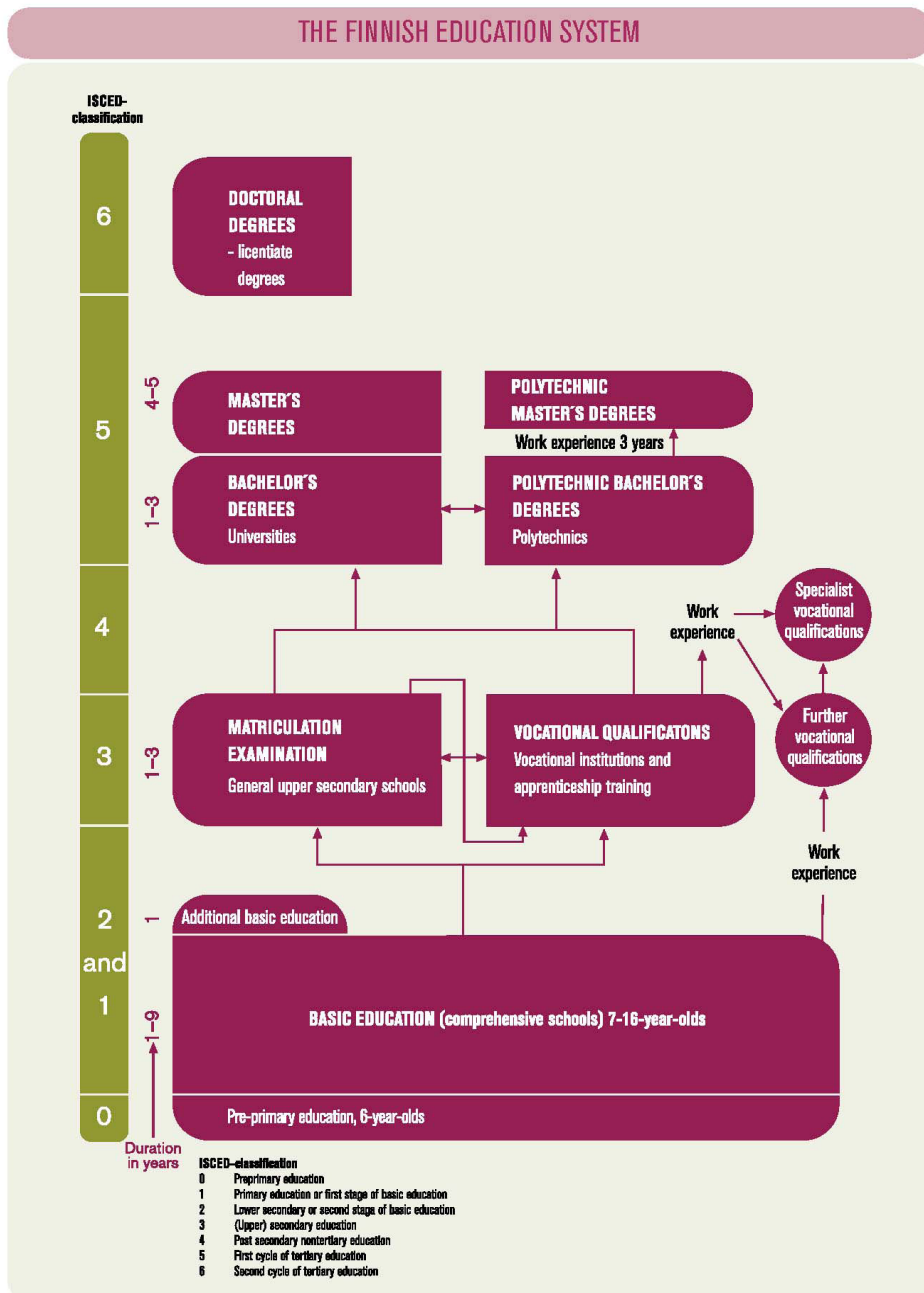
<URL: <http://www.minedu.fi/OPM/?lang=en>>

Laurea 2005. Proposal to become a regional development centre of expertise. Application for the Finnish Higher Education Evaluation Council.

Laurea's personnel development plan 2007-2008.

LbD teacherhood, chart of competences. Evaluation tool under construction, to be implemented 2008.

Appendix 2. The Finnish education system



Source: Ministry of Education.(26.9.2007).

<URL:http://www.minedu.fi/export/sites/default/OPM/Koulutus/koulutusjaerjestelmae/liitteet/finnish_education.pdf>

References and bibliography

Barrows, H. S. and Tamblyn, R.M. (1980). *Problem-Based Learning: An Approach to Medical Education*. New York: Springer.

Berthelsen, J., Illeris, K., and Poulsen, S.C. (1977). *Projektarbejde*. København: Borgen.

Graaff, E. de and Kolmos, A. (2007): *Management of Change Implementation of Problem-Based and Project-Based Learning in Engineering*, Netherlands: Sense Publishers.

Kotter, J. B. (1995). Why Transformation Efforts Fail, *Harvard Business Review*, March-April 1995.

Niiniö, H. & Pusa, T. *Program & time schedule of The Third Sendai-Finland Seminar*. 9-2007.

OECD. 2004. OECD Territorial reviews Helsinki, Finland. Volume 2003. Number 30. April 2004.

Savin-Baden, M. & Major, C.H., (2004) *Foundations of Problem-Based Learning*, Society for Research into Higher Education and Open University Press.

Sawyer, K. (2007): *Group Genius – The Creative Power of Collaboration*, Basic Books, New York, 2007.

Sawyer, K. (2006): *The Cambridge Handbook of the Learning Sciences*, Cambridge University press.

Starkey, K. (Ed.) (1996). *How Organizations Learn*. International Thomson Business Press.

Y.Myint, S Vyakarnam and M New The Effect of Social Capital in New Venture Creation: The Cambridge High-Technology Cluster. *J of Strategic Change*. (May 2005.)



Laurea University of Applied Sciences
Ratatie 22
01300 Vantaa
Finland

Within the context of Finnish Higher education reforms Laurea University of Applied Sciences sought to review its own innovation of its Learning by Developing (LbD) model. This report sets out the background to LbD within the context of a conceptual framework of project based learning and provides findings from the study. Five main recommendations are made for the continued expansion of LbD.

Learning by Developing (LbD) is an innovative operating model which requires students to undertake projects rooted in the world of work aiming to produce new practices, the progress of which requires collaboration between teachers, students and workplace experts. LbD may also be described as a learning vehicle for the development of two sets of competences. The first being generic such as work/life knowledge and skills and the second being subject specific competences.

LbD is a comprehensive shift. It is a bold step for an Institution to take. To grow it and to make it sustainable is an even bigger challenge. The review has indicated that there is both the will and the skill within Laurea to take this journey of LbD and other Higher Education Institutions are encouraged to stay in touch with Laurea as people within are open to sharing the lessons.

ISSN 1458-7238
ISBN 978-951-799-132-0



LAUREA

www.laurea.fi