



**LAUREA**  
UNIVERSITY OF APPLIED SCIENCES



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*ADAPTATION OF LEARNING BY DEVELOPING  
FOR COMPREHENSIVE SCHOOLS  
LbD4All Guide*



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## 1. FOREWORD

Our rapidly changing world challenges schools to renew their approaches in the near future. Operating online and mobile learning are now part of the daily life of contemporary studying, as these forms of learning provide plenty of opportunities but also generate challenges. The way the digital native generation operates is still looking for its stabilized form. At the same time, teachers are being challenged by the digitization of learning materials and by a working environment, which is becoming multilingual and multicultural. Collaboration and peer support generate new empowering approaches for the school community in a world of changing values.

Based on the results from the latest PISA study, comprehensive schools face a challenging reform program. Finnish education expert Pasi Sahlberg, Visiting Professor of Practice from the Harvard Graduate School of Education, has presented an opportunity in the comprehensive school vision to meet the challenges arising from the PISA study. Sahlberg's vision comprises four principles: 1) halving the amount of classroom teaching, 2) increasing studies carried out in workshops, projects and independent studying, 3) taking communication, social situations, debates and argumentation in teaching into consideration, and 4) supporting the passion or creativity inherent in every learner. (Sahlberg 2014; Välijärvi et al. 2014.) In addition, the PISA report emphasizes the significance of motivation and the observation of diversifying assessment methods in school work (Välijärvi et al. 2014).

The principles presented by Sahlberg can be discerned in the Learning by Developing (LbD) action model developed by Laurea University of Applied Sciences, which has been successfully implemented since 2006. The LbD model creates opportunities to reform assessment methods and support the inclusion of learners through them. The model provides a basis for developing creativity and self-directedness. Learning by Developing improves the working atmosphere and broadens one's worldview. The draft of the new curriculum in Finland (2016) observes a future

improvement of the PISA study results in accordance with the principles presented by Sahlberg. Similar challenges have been successfully resolved with the help of the LbD action model.

LbD4All is a model designed for comprehensive schools that is based on the Learning by Developing action model. This LbD4All guide can help the school community to orient itself towards resolving issues that arise in the future, and it forms part of a pilot project, which itself is part of the LeTeEm project funded by EU Comenius (Learners, Teachers and Employers 2013 - 2015). The partners in this project come from Scotland, Bulgaria, Romania, Belgium, and Finland. A number of booklets that will complement this guide will be published during 2014. The booklets will examine practical examples that are suitable for comprehensive schools. Furthermore, training on this topic will be offered to teachers.

The purpose of the guide is to introduce the LbD4All action model and the opportunities it provides from the perspective of comprehensive schools to those interested in developing comprehensive school teaching. The aim is to describe alternatives to expanding learning environments by networking with actors outside schools. The aim is also to present ideas on learning and interactive work with different actors that are not restricted by time or place.

The guide introduces the LbD action model and its pedagogical background. The LbD4All action model developed for comprehensive schools is based on level 2 of the Finnish National Qualification Framework (NQF)<sup>1</sup> and the draft of the 2016 curriculum for comprehensive schools. Expertise has been applied to the guide from material gathered in the workshop that was arranged in February 2014 for local actors from comprehensive schools. Furthermore, five experts<sup>2</sup> representing comprehensive schools have read the first version of this guide and have provided feedback. The feedback has been taken into account in the development of this guide.

<sup>1</sup> National Qualification Framework (NQF) is the national framework for degrees and other knowledge.

<sup>2</sup> Humalamäki, A., Leutonen, P., Nuutinen, M., Rae, A., & Vanhanen, J.

## 2. PEDAGOGICAL BACKGROUND TO THE LEARNING BY DEVELOPING ACTION MODEL

**L**earning by Developing (LbD) is a learning and action model developed at Laurea University of Applied Sciences that has been in place since 2006. The development process of the action model originates from project-based teaching, where elements of research-based learning have begun to be implemented in working life-oriented development projects. Research has been integrated into learning at a later stage in development projects, and is seen as a tool for producing new knowledge. (Raij 2007.)

The Learning by Developing (LbD) action model is based on a pragmatic educational philosophy. Known as a representative of pragmatism, the educational philosopher John Dewey's thinking in relation to general school teaching has formed the basis for the Learning by Developing action model. According to Dewey, school is part of one's life and education is part of living. Therefore, learning should take place in genuine activities related to life and one's environment.

School detaches itself from its communal task if it becomes a unit that overemphasizes information. Pragmatism emphasizes the significance of the learner's experience and interaction in the learning process. According to Dewey, a learner's progress is based on the development of new attitudes and interests. (Dewey 1984, 443 - 450.)

The LbD action model has similarities with experiential, research-oriented, expansive, problem-based, and constructive learning concepts. Different learning concepts produce a conceptual framework that can be used to interpret phenomena related to learning. Many of the present learning concepts are based on the experiential learning concept. After behaviorism, which started in the early 1900s, the concept of learning has changed over time. Figure 1 illustrates the positioning of the LbD action model with other learning concepts.

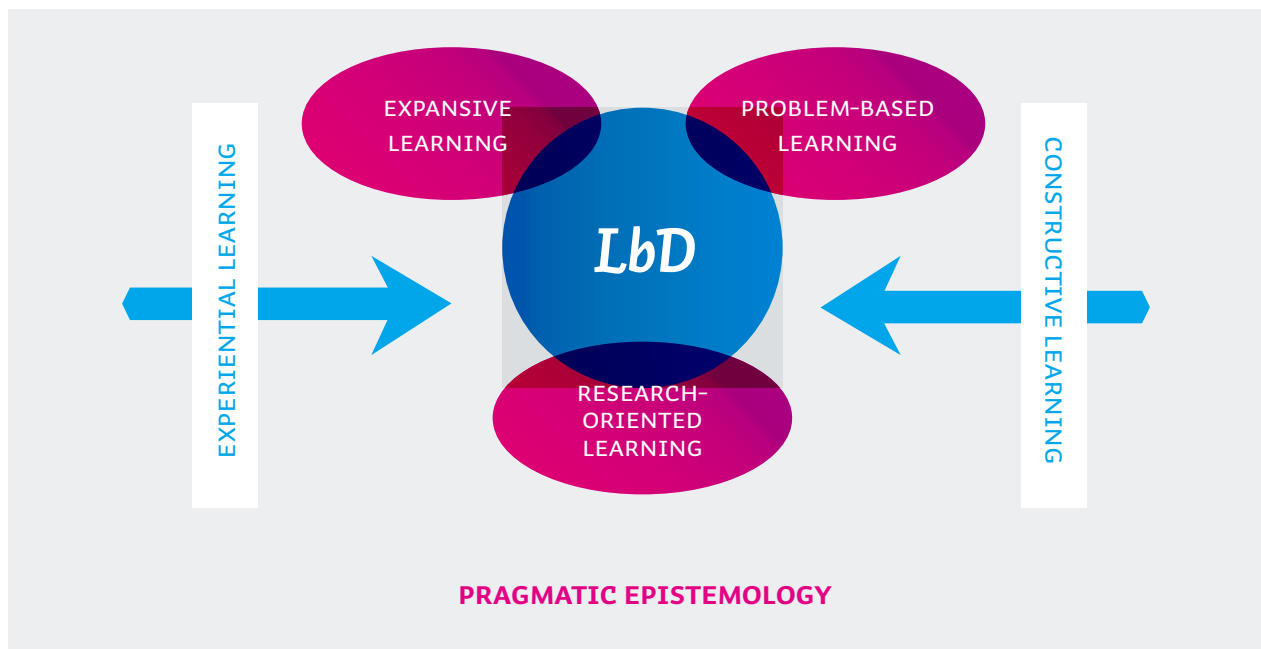


Figure 1. The pedagogical background to the Learning by Developing action model.

**Experiential learning** is based on pragmatic epistemology, thus Laurea's Learning by Developing model is clearly related to it. The same view is also shared with research-oriented learning, expansive learning, and problem-based learning as well as constructive learning. These are briefly described below.

Experiential learning is understood as a process that begins from an experience and proceeds via reflective observation and abstract conceptualization to experimenting (cf. Kolb's experiential learning theory). Learning takes place in interaction where the learners should be directed to reflect upon their own experiences. Dewey was one of the earliest proponents of the concept of reflection. (Poikela 2003, 125-126.) According to Dewey, all growth takes place through experience, although not all experience is educational. The experience that leads to learning should continue with something that has taken place earlier and then it should form it in some way. An individual's experience is

in accordance with the previous experiential world of that individual. (Dewey 1984.)

**Research-oriented learning** takes place with the help of learning projects. Students are responsible for project planning and implementation, with guidance provided by the teacher. In research-oriented learning, the student is encouraged to create new and to deepen the study of phenomena. (Hakkarainen, Lonka & Lipponen 2004, 205.)

Hakkarainen et al. (2004, 202-204) present seven components of research-oriented learning that lead to shared expertise: the creation of the context, the establishment of the research questions, the creation of theories for working, critical assessment, the creation of new theories for working, the establishment of specified problems, and the search for deep knowledge. Figure 2 illustrates the process of research-oriented learning.

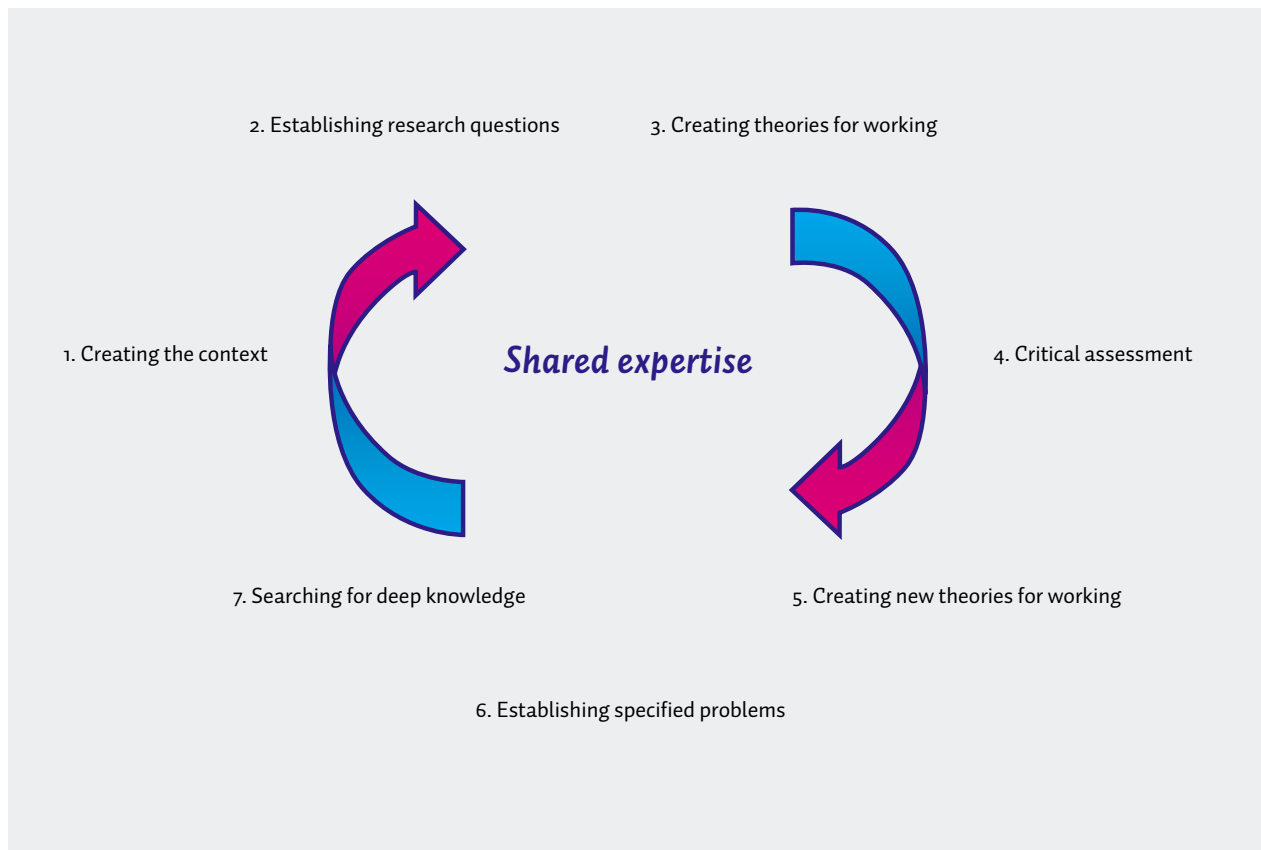


Figure 2. The components of research-oriented learning (Adapted from Hakkarainen, Lonka & Lipponen 2004, 202).



At the center of the components of research-oriented learning is shared expertise, which is the main aim of research-oriented learning. Teamwork among the students enhances the development of expertise. The aim is to make the students generate new ideas and thoughts for each other's conceptual creations. The development of knowledge is the responsibility of the whole learning community in the research-oriented learning process. (Hakkarainen et al. 2004, 204.) The Learning by Developing action model applies the elements of research-oriented learning.

**The model of expansive learning** emphasizes social practices. Such practices can be represented by different organizations and systems, and the target of learning is the whole system of operations. The learning process is a collective and long-lasting event. The matters to be learnt cannot be absorbed by reading books or following other employees. (Engeström 1995, 87.) Expansive learning requires the joint examination of various perspectives and ways of acting by discussing (Engeström 1995, 108). A characteristic of expansive learning is the creation of the new. The connection between the Learning by Developing action model and expansive learning manifests itself in the development of communal learning and work practices, among other things.

Problem-based learning (PBL) focuses on examining an unsolved case with existing knowledge (Raj 2007). The model of problem-based learning is successfully implemented in teaching within various fields. The task of the tutor is to guide and help students through each of the consecutive and recurrent phases of discussion and decision-making. The tutor operates as a mediator in difficulties which arise in the group's collaborative work. Problem-based learning is an approach to learning rather than a technique of teaching, as it is often understood (Engel 1999, 31). The Learning by Developing action model shares a number of things with

problem-based learning, such as the process character of the models, the significance of guidance, and problem-oriented viewing. However, the LbD model does not restrict actions that are designed for searching for a solution to a specific case.

**The constructive concept of learning** arose from the need for societal change. From a constructivist perspective, the learner is seen to process knowledge actively. Problem-solving is central to learning. Learning is generated from the cooperative interaction of many variables, while the understanding of various phenomena is structured in interaction with other learners. (Rauste-von Wright 2001, 30-32; Tynjälä 1999, 162.) In constructivism, the prevailing role of the active learner is seen as quite the opposite to that in behaviorist learning, where learning is generated mechanically on the basis of fragmented thinking. In teacher-centered behaviorism, the task of the learner is to connect pieces of knowledge to each other in which reinforcement has a crucial significance in learning. (Rauste-von Wright 2003, 48; Leino 1992, 1.)

In learner-centered constructivism, the role of the learners is to be active, goal-directed, and self-directed. They need to understand, recognize, and evaluate their own experiences. In the constructive learning concept, the learner learns to utilize various learning strategies such as listening and visual skills. In addition, they learn to utilize their own experiences in the learning assignments and to evaluate their own learning and behavior. (Rauste-von Wright & von Wright 1994, 19-25.) In the constructive learning approach, feedback and evaluations are versatile and flexible. They are used to evaluate the student's learning process. (Rauste-von Wright & von Wright 1994, 9-30.) At Laurea, the constructive learning concept is manifested as presented above when learning is carried out using the Learning by Developing action model.

### 3. INTRODUCTION TO THE LEARNING BY DEVELOPING ACTION MODEL

Laurea was selected as a Center of Excellence for 2010 – 2012 in Finland for the fifth time. This Center of Excellence period was awarded for the LbD action model. The LbD action model has been evaluated both nationally and internationally. The evaluation states, for example, that LbD is an active model that integrates the student’s daily activities with the development of working life. The model is based on work that strives to solve authentic problems. The theoretical base of the model is sustainable

and is based on a carefully reflected action chain analysis. According to the evaluation, the role of LbD focuses on the development of the world of work. The action model was seen to have a very positive effect on students’ motivation and studies. (Finnish Higher Education Evaluation Council, FINHEEC, 2010.) This chapter examines the LbD action model in general from the perspectives of the learner, the teacher, and the learning environment. Figure 3 illustrates the elements of the action model.

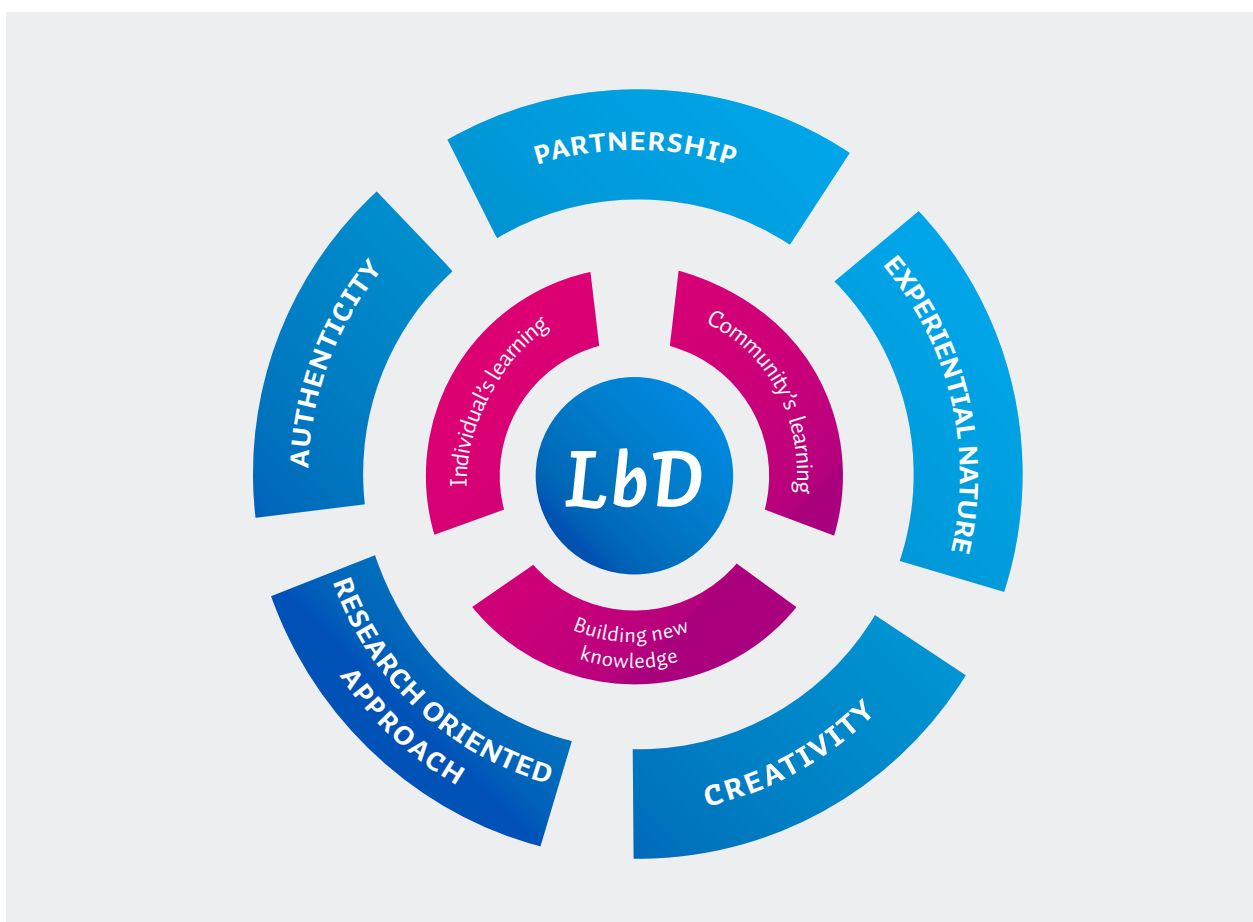


Figure 3. LbD action model. Laurea University of Applied Sciences.

The starting point of the model is that the learning environment consists of an authentic development project connected to working life. Learners, teachers, and representatives from working life collaborate and generate new knowledge. Learning takes place in equal cooperation between different actors.

Learning advances procedurally and in the actions the aim is to generate new knowledge. The LbD action model is formed of phases that complement each other. Work begins with the individuals getting acquainted with the phenomenon, including discussions on earlier research results and solution models. It is common when implementing the LbD model to work together and share experiences. The recognition of achieved knowledge enables continuous assessment targeted at the learning process and the self-assessment of knowledge. Dissemination and the sharing of results enable the reflection of effectiveness.

In preparing a project employing e-learning tools that offer versatile opportunities, one needs to invest in the development of cooperation and interaction skills as well as in understanding the e-learning environment. During the project, the adoption of tools in the e-learning environment is emphasized along with interactive working.

### A Learner's Perspective: From the Protective School Desk to Projects

Genuine collaboration means the commitment of all parties to joint working from planning to the assessment of results.

In the LbD action model, the learner can safely practice cooperation in different groups. One learns not only knowledge and skills but also interaction and teamwork skills. When learning takes place in authentic projects, learners acquire experience in cooperation with working life and the wider community. Creativity increases because it is the learner's task to actively search for information and develop skills in information acquisition and thinking. Taking responsibility can be seen in the learners' readiness to commit themselves to work and to achieve learning results, as well as to take responsibility for their own and others' learning.

Cooperation is encouraging, as the employment of creativity and working together with others sustain the motivation to learn. Learners need to be given the opportunity to argue about, select and evaluate information. The continuous assessment of one's own work helps to internalize the criteria that can be used to compile sensible and justified assessments of one's own and others' thinking and work.

### The Role of the Teacher: From Teacher to Coach/Advisor/Instructor

In the LbD action model, the teacher learns a new way to be a teacher. The role emphasizes the teacher's role as a coach and advisor rather than as one transferring omniscient knowledge. The teacher needs to be able to accept insecurity related to work. There is still a demand and a need for the expertise of a teacher, even though not everything has to be taught in the classroom; instead, learning can take place in many ways. Typical approaches include discussions on research results and the comparison and challenging of results. Teachers are also learners; they learn from others during the projects.

The structure of work changes because the work of a teacher is focused on planning and evaluation. Planning one's work takes more time than it did before, since the realization of teaching is continuously developed on the basis of feedback and experiences. The cooperation between teachers also belongs to Learning by Developing. Teachers work in pairs and teams and in different fields of expertise as well as expert roles.

The teacher's tasks include being present, monitoring the working of the teams, giving instructions and guiding the learners to find the answers themselves. Learning needs to be organized so that the learner develops into a researcher who searches for and uses information from different sources with different tools. The learner needs to be allowed to talk about the problems preventing him or her from working efficiently in confidence. The teacher needs to be interested in listening and helping when needed.

The teachers' creativity increases and they learn to see matters from different perspectives. The generation of new knowledge inspires and motivates the teachers as well.

### Learning Environments: Out of the Classroom

The learning project functions as a learning environment for the teams and other actors. The project exists in the present and in working life, reflecting an authentic learning environment, and different communication and electronic tools can be integrated in that learning environment.

New kinds of opportunities, such as different virtual learning environments, support working. Learning projects can exploit Twitter and Google Docs, for example, as well as other tools. Language teaching and other school subjects can easily be combined with other subjects in projects.

Materials supporting learning can consist of books and other traditional sources of knowledge. In addition, one needs other sources that can be used to acquire information related to the phenomena. Information can also be sought by interviewing, observing or employing other methods. (Suominen & Nurmela, 2011.)

Living labs, or multidisciplinary working communities, can function as learning environments. Their focus is on both user-centric research and innovations. With these communities, participants can design their services to meet the needs of users while creating new innovations at the same time. Living labs bring the experiential nature of research to cooperation between users, partners, and other participants. The user-centric community searches for solutions to the daily problems experienced by a user of a product or service. (Leminen, Westerlund, & Nyström, 2012.) One example of living labs is the Marketing, Events, and Communications Team at Laurea Leppävaara, where students carry out different studies and internships together with various experts, while specializing in different tasks belonging to the field of marketing.

### Assessment of Competencies: From Evaluating Knowledge and Skills to Assessing Competencies

The assessment of competencies can take many forms in the LbD action model. Assessment methods can include

portfolios, reports, and other outputs, in addition to tests and exams. Self and peer assessment form a central way of reflecting knowledge and producing feedback on learning. Assessment is generated throughout the project and learning process, instead of simply focusing on the final product. Therefore, it is important that assessment is visible, dialogic, multiform, and developing.

Multiform assessment feedback provides the opportunity to take different areas of expertise into consideration. In addition to written products, it is useful to be able to assess actions and knowledge based on other assessment methods. Learners need to be able to realize when feedback can be received. They should also have the possibility to participate in and discuss assessment. Assessment that is analytical and developing enables the growth of an individual and the development of competencies when moving from one task and one project to another.

The assessment process should begin with getting acquainted with the objects and criteria of assessment. It is useful to allow the learners to set their own objectives for reflection to take place during and after learning.

## 4. FROM THE LEARNING BY DEVELOPING ACTION MODEL TO LBD<sub>4</sub>ALL SUITABLE FOR COMPREHENSIVE SCHOOLS

This chapter introduces the LbD<sub>4</sub>All learning model, which has been designed for comprehensive schools on the basis of the Learning by Developing action model. The development work of the LbD<sub>4</sub>All model for

comprehensive schools is based on level 2 of NQF and the 2016 draft curriculum for comprehensive schools. Figure 4 illustrates the model with the learner in the center.



Figure 4. The LbD<sub>4</sub>All model adapted for comprehensive schools.

The model shows that both the individual's and community's learning as well as the building of new knowledge are significant. These are realized through the five LbD dimensions of authenticity, partnership, experiential nature, research-oriented approach, and creativity. The dimensions are explained from a comprehensive school's viewpoint in chapter 4.2. The examples from the comprehensive school representatives produced at the workshop provide a practical view of them.

#### 4.1 The Core of Learning: An Individual's and a Community's Learning and Building of New Knowledge

In the learning model, the learner interacts with other people and the environment. Here, the term **individual** means the pupil, teacher, and other partners.

Learning and the building of new knowledge are enhanced through motivation and reflection. The most central factor in an efficient learning process is the learner's own active thinking. Active thinking takes place with the help of reflection. When learners actively reflect on new learning experiences, they can connect new knowledge and new perspectives to their earlier knowledge.

Feedback is an important component with regard to the functioning of the model. The significance of feedback is important for the individual's learning and development. The learning model supports the learning process of learners, where different learners receive support and feedback from their peer learners and other actors.

Everyone learns in activities in accordance with the LbD model. The joint objectives of the group support the **community's learning**. The aim is to understand and explain phenomena together. Furthermore, the objective is to develop the pupils' cognitive, information processing and metacognitive skills as well as skills for learning how to learn. Complicated problems and phenomena require group work and interaction between group members. The teacher has an important role to play in promoting interaction and commitment to the group. The learning and working processes are more important than the end result produced by the community. Learning is growth towards communality in interaction.

Communal learning can also take place as e-learning, where online discussions are especially justified as producers of communality. The challenge of online discussions is how to achieve a genuine dialogue.

Learning that creates new is expansive by character. **New knowledge** is produced through common dialogue. Dialogue means discussion where the aim is to understand each other, to enrich perspectives, and to work towards a shared perspective. Thus, listening is an important skill in achieving dialogism. In the school world, intercultural communication skills are also emphasized. Communication skills are learned through cooperation.

#### 4.2 The Dimensions of the LbD4All Model

This chapter introduces the dimensions of the LbD4All learning model, which are based on the LbD action model. The examination of the dimensions begins with a definition, then proceeds to the challenges in comprehensive schools and introduces examples produced during the workshop. Each dimension – authenticity, partnership, experiential nature, a research-oriented approach, and creativity – has its own role in the application of the model. The LbD4All model supports the development of the pupil in accordance with the aims.

**Authenticity** refers to a genuine approach and connection with working life in the projects carried out at school. A genuine, working life-related research and development project creates the learning environment for its participants. Projects enable the learners' participation in the research and development of their local community and environment. The learning results influence the development of the environment and local community. Pupils want teaching to be relevant and genuine (Prensky 2010).

According to the aims of the draft of the 2016 basic education curriculum (Ops2016), "the task of wide knowledge is to promote the development of a pupil as a human being and a member of society. In addition, it must support the preparedness of the pupil to face the future and promote sustainable development." According to the objectives of level 2 of the NQF, the pupil needs to master cognitive and basic practical skills, which can be exploited when carrying out tasks and solving common problems.

In the LbD4All workshop in February 2014, participants shared their observations related to authenticity:

- The project of making the school a comfortable learning environment
- Visits to enterprises and working on company premises
- The local environment is the best teacher
- The exploitation of the work practice program more broadly and sharing the experiences received
- The organization of the school camp.

**Partnership** refers to responsible cooperation in a project between pupils, teachers, and experts from outside the school and communities. Jyrkiäinen & Koskinen-Sinisalo (2012, 20) view partnership as equal and based on trust. Interactive working provides change situations, challenges and learning events. Pupils have the opportunity to become familiar with a number of different professions.

According to the draft curriculum, “learning takes place in interaction with a peer group, teacher, members of the school community, experts from outside the school and different communities in different learning environments. Learning is doing, thinking, planning, and the versatile evaluation of these processes alone and together.” (Ops2016.) NQF 2 emphasizes the pupils’ accountability and activities they initiate themselves.

The workshop saw lots of opportunities and examples of partnership, which is essentially teamwork. It is useful for the school to define and commit partners. The observations related to partnership are summarized as follows:

- Partnership can mean cooperation with local organizations such as a transport company, a supermarket, a church congregation, a youth group or a post office
- Long-term partnerships are worth building in the areas close to where the young people live
- Equality is seen as a challenge for the teacher
- Significance of accountability and clarifying responsibilities
- An example of an ongoing project: Meetings for the benefit of a sustainable way of life. This project was carried out in cooperation with local experts and officials.

**Experiential nature** means the communal sharing and exploitation of knowledge. Experiences strengthen the learning process. The changing of the learner’s role from a passive receiver of information to the active handler of information also belongs to experiences. In dialogic and research-oriented teaching, the teacher is an equal group member and creates experiential knowledge together with the group (Suominen & Nurminen 2011). Participation develops the skills of an active citizen through participatory skills needs (Jyrkiäinen & Koskinen-Sinisalo 2012).

The draft curriculum states that “the pupil’s interests, valuations, ways of working, feelings, and experiences as well as self-perception as a learner steer the learning process. The giving and receiving of realistic feedback form a central part of open and encouraging interaction that supports and mediates learning in both individual and group situations.” (Ops2016.)

The workshop considered experiential nature from the perspective of teachers and pupils, and the following observations were made:

- Pupils can engage in the planning and implementation of their school’s positive daily life
- Experiential nature helps one to understand oneself and others as learners, when experiences are shared to form the basis of common knowledge
- Experiential nature broadens the learning experience, process, and assessment. Learning can manifest itself as a song, a film, in writing or as a spoken presentation
- Storytelling as a form of cooperation and as an activity that brings parents and different subjects together
- It enables the creation of learning events outside the classroom, such as afternoon coffee events for different groups.

**A research-oriented approach** refers to the exploitation of researched knowledge in activities and in developing one’s own knowledge. The ability to grow into a thinking citizen requires discussion skills and critical thinking. A research-oriented approach enables the recognition of effectiveness. Cooperation can consist of research, teaching, cooperative activities, development, and innovation tasks. (Jyrkiäinen & Koskinen-Sinisalo 2012.)

According to the draft curriculum, pupils’ readiness for systematic thinking develops in phases when they learn to understand the relationships between different matters. Pupils are guided towards and encouraged to engage in the independent and critical acquisition and use of information. Pupils are offered the opportunities to use appropriate ICT. (Ops2016.) According to level 2 of the NQF, young people should learn to master the basic tools required for working (NQF2).

The workshop raised matters related to information acquisition and use with regard to the research-oriented approach. The following points summarize these matters from the workshop:

- Information acquisition and critical thinking are essential
- Planning and logic are related to the research-oriented approach
- One needs to learn to perceive entities
- The subjects for research should be close to the world of comprehensive school-aged young people
- Project working and the creation of new knowledge need to be learned

**Creativity** means “the freedom to seek new, to produce new ideas, and find new paths” (Laurea 2011). Having different options enables the identification of creative solutions and innovations. The aim is to find new information and develop new knowledge.

According to the draft curriculum (2016), pupils can develop their imagination skills. Different kinds of playing and games, and active ways of working develop creative thinking. Pupils should be encouraged to take on new opportunities bravely and creatively. Learning takes place when actions, thinking, and assessment are considered by taking different alternatives into account (Suominen & Nurmela 2011).

Creativity was considered from various perspectives in the workshop. The following observations summarize them:

- Curiosity, joy, and shared experiences are an opportunity
- One needs to cope with failures
- People should be encouraged to be themselves and the development of self-esteem should be supported
- Show people that you trust them, and give them permission to try things out
- Allow space to act, think independently, and to strive for self-realization.

Creativity can be supported with the help of joint learning experiences and environments. Creativity also means varying approaches. Along with tests and exams, communal approaches are necessary.



## 5. CONCLUSION

The purpose of this guide is to introduce the LbD4All model and the opportunities it provides for comprehensive schools. The guide has attempted to describe Learning by Developing and its background on a general level, and show how it can be adapted to activities in comprehensive schools.

The aim of the guide is to offer alternatives to expanding learning environments by networking with other actors. It emphasizes the significance of multidisciplinary and phenomenon-based cooperation. Cooperation and networking can take place inside the school with different teachers and other actors, but also by creating functioning cooperative relationships outside the school. This allows the cooperative and networking partners to consist of different organizations and associations from both the private and the public sector.

The aim has also been to diversify interactive learning and working that are not restricted to time or place. An increase in dialogism enables genuine cooperation, while at the same time, the action model encourages activities outside school classes as an active part of the wider community. This makes learning possible in other contexts.

The compilation of this guide has made use of the expert feedback received from actors in comprehensive school. The feedback also provided information that needs to be taken into consideration in the activities of comprehensive schools. Communal learning can mean significant changes in the actions of many teachers. The traditional approach, based on the subject teacher system, will need new parallel forms of activity where matters are learned in a phenomenon-based way. This brings variability, flexibility, and practical activities into the schedule, but at the same time it generates demands on a new way of thinking and how to concretize it.

The new opportunities that e-learning offers mean increasing demands on teachers and other cooperative partners. Therefore, ICT skills and ICT training are crucial when introducing the action model.

Creating a positive atmosphere and learning how to cooperate with others promote the establishing of a new approach. Successful experiences support the motivation of teachers, learners, and other actors. Companies, parents and other stakeholders play a key role in building the cooperation network.

Schools need to combat financial and other issues related to resource allocation. Time management in teaching can change when the emphasis is on planning and assessment work. Teachers in particular need support in this change process. Other actors, such as those planning schedules and/or administrative officials, should re-examine their activities, when different learners and groups need to be taken into consideration when planning and introducing the action model.

Research results and discussions with representatives of comprehensive schools have established the need for new methods to meet the challenges of the changing world of education. The LbD4All action model, which is based on project-type working and cooperative development, offers the opportunity to coach learners to face the challenges of the future.

The booklets designed to complement this guide will focus, among others, on e-learning and project- and team-based learning. They will provide practical examples of planning Learning by Developing for the environment of comprehensive schools.

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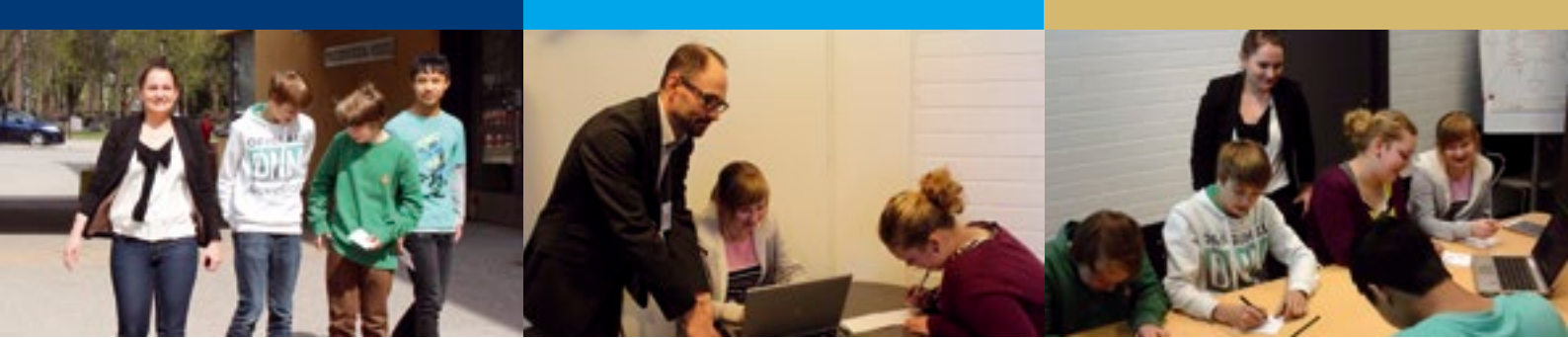
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## *ADAPTATION OF LEARNING BY DEVELOPING FOR COMPREHENSIVE SCHOOLS*

### *LbD4All Guide*

New ways of acting are needed in comprehensive schools in order to meet the changing needs of the wider society. Development-oriented cooperation between pupils, teachers and actors from the world of work through project work offers solutions to the transfer of teaching and learning from the classroom to the surrounding community.

This publication is for those interested in the development of teaching in comprehensive schools. The publication provides a versatile introduction to Laurea's pedagogical action model Learning by Developing (LbD) and its adaptation for comprehensive schools (LbD4All).

The aim is to introduce the action model LbD4All and provide stimuli in order to apply this model in comprehensive schools. The main concept is for LbD4All, or the Learning by Developing action model, to become integrated in the work of comprehensive school staff.

This publication has been developed as part of the Comenius project LeTeEm (Learners, Teachers and Employers). During the project this action model will be piloted in Europe.