# Social Dimension of WEB 2.0 in Teacher Education:
# Focus on Peer-Learning

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## Abstract

*The research deals with the analysis of efficiency of teaching techniques with the use of the social dimension of Web 2.0 within the English for Specific Purposes course in pre-school and primary teacher education that would help students to become more cognizant and more responsive to the emerging needs of the market for educational services and to promote use of the social dimension of Web 2.0 by pre-school and primary student teachers. The paper introduces the study conducted in Latvia in 2008-2009. The conducted explorative research comprises four stages. The sample involved 47 pre-school and primary student teachers and revealed that teaching techniques with the use of the social dimension of Web 2.0 are efficient if peer-learning is emphasized to provide student's personal experience in use of the social dimension of Web 2.0 as a condition for creation of new knowledge.*

## 1. Introduction

Web 2.0 is jointly formed by four dimensions, namely, the infrastructure dimension, the functionality dimension, the data dimension, and the social (or socialization) dimension. Socialization, described as taking software or even user-generated content and sharing or jointly using it with others, covers the aspect of user-generated content as it occurs in blogs or wikis, in tagging as well as in social bookmarking [8]. Skype, Classroom Management Systems, the eBay seller evaluation, the Amazon recommendation service, or Wikipedia [8], where the increased data exchange within the system is no longer a limiting parameter with the current developments in the infrastructure, are classical examples and have found widespread acceptance in the community.

Contemporary teachers need to become more cognizant and more responsive to the emerging needs of the market for educational services. Teacher education has the potential to contribute decisively to the sustainable development of the social dimension of Web 2.0 which penetrates our society more thoroughly with the availability of broadband services. However, the success of the social dimension of Web 2.0 in teacher education requires the efficiency of teaching techniques with the use of the social dimension of Web 2.0 within the English for Specific Purposes course in pre-school and primary teacher education to be considered.

The meaning of the key concepts of *social dimension of Web 2.0*, *pre-school and primary teacher education* and *peer-learning* is studied. The study shows a potential model for development, indicating how the steps of the process are related following a logical chain: determining the social dimension of Web 2.0 → revealing the social dimension of Web 2.0 in pre-school and primary teacher education→ defining peer-learning → empirical study within a multicultural environment.

The paper is organized as follows: Section 2 introduces the theoretical framework with the emphasis on the social dimension of Web 2.0 and the social dimension of Web 2.0 within pre-school and primary teacher education. Research methodology is studied in Section 3. The associated empirical results are presented and interpreted in Section 4. Finally, some concluding remarks and hypothesis for further studies are elaborated in Section 5.

## 2. Theoretical framework

The theoretical framework of the present contribution involves the meaning of the key concepts of *social dimension of Web 2.0*, *pre-*

*school and primary teacher education* and *peer-learning* studied.

## 2.1. Social dimension of WEB 2.0

The paradigm change, namely, the move towards mass collaboration [6] and/or mass socialization [8] – from person to people and from systems to service [4], puts the emphasis on teaching techniques with the use of the social dimension of Web 2.0.

Typical social dimension of Web 2.0 techniques and technologies include "social software" and online social networks [8].

"Social software" is seen by Vossen [8] as software that gets better (or at least more useful) the more people use it. While most of the time the software itself, i.e., the program system, does not change based on the number of its users or the frequency with which it is used, it is the application that the software is enabling. Examples include Skype, the eBay seller evaluation, the Amazon recommendation service, or Wikipedia. Especially the latter is a perfect example for what so-called mass collaboration [6] or crowdsourcing can achieve.

There is also another impact that socialization can have, namely, that of improving some given software on a constant or perpetual basis. Traditionally, software has never been free of bugs, security holes, or errors, and it has been common for a software company to fix them and distribute new releases or versions of the software from time to time. The new approach is to do this at a much higher pace. Software on the Web may nowadays be in a permanent beta state of release and never finished. Thus, for outsiders maintenance occurs on a permanent basis. Such a state of perpetual beta may apply to a service that can only be accessed through an API (application program(ming) interface), in which case a user is not bothered by constant release changes, at least as long as the behaviour of the API is only extended, but not fundamentally modified.

Then, Vossen [8] considers that online social networks, another form of mass socialization today, bring a dimension to the Web that goes beyond simple links between pages; they add links between people and between communities. In such a network, direct links will typically point to our closest friends and colleagues, indirect links lead to the friends of a friend, and etc.

A social network on the Web is typically the result of employing some software that is intended to focus on building an online community for a specific purpose. Social networks connect people with common interests and may be as simple as a blog, or as complex as Facebook or MySpace for mostly private applications, as LinkedIn or Xing for professional applications, or as Twitter for both. The primary impact that the current Web developments are having in this area are that connecting people and communities constantly becomes easier, and it is not difficult anymore to maintain a professional or personal network of buddies worldwide. Yet another impact is that a social network may open up novel sources of revenue, in particular through advertising. Finally, Vossen [8] underlines that two aspects should have become clear by the discussion so far: on the one hand, the most obvious change that has recently occurred on the Web is that it has changed from a pure read Web as designed by Berners-Lee [3] to a read/write Web, where users not only draw information from, but also add information to it. On the other hand, the dimensions we have discussed exhibit various overlaps. Indeed, technology enables functionality, which as a "byproduct" leads to data collections, and users have a new tendency to socialize over the Web, by exploiting that functionality and the technology.

Hence, social dimension of Web 2.0 techniques and technologies, namely, "social software" and online social networks, are seen as an integral part of pre-school and primary teacher education.

## 2.2. Social dimension of WEB 2.0 in pre-school and primary teacher education

The change in teacher entering the service area, namely, not working permanently at an educational institution but accepting project-related orders of educational institutions [2] reveals the significance of social dimension of Web 2.0 techniques and technologies to be integrated into the processes and environments of pre-school and primary teacher education.

The search for the integration of social dimension of Web 2.0 techniques and technologies into pre-school and primary teacher education reveals that the software programmes following the traditional stimulus-response model based on behaviourism lead to the computers' misuse [7]. Hence, a proper integration of social dimension of Web 2.0 techniques and technologies into pre-school and primary teacher education based on the process of interiorization [9] is provided by peer learning [10].

Thus, a proper integration of social dimension of Web 2.0 techniques and technologies into pre-school and primary

teacher education gradually moves from teaching in Phase 1 to learning in Phase 3 through peer-learning in Phase 2 as depicted in Figure 1.

All learning is part of a single process, an on-going process [5]. This finding suggests that learning and/or e-learning are part of a single learning process in teacher education. Hence, teacher education is formed by student learning where e-learning is an integral part.

Thus, integration of social dimension of Web 2.0 techniques and technologies into pre-school and primary teacher education based on the process of interiorization emphasizes the paradigm shift from learner-centred approach to peer-centred approach to teaching techniques with the use of the social dimension of Web 2.0 in pre-school and primary teacher education.
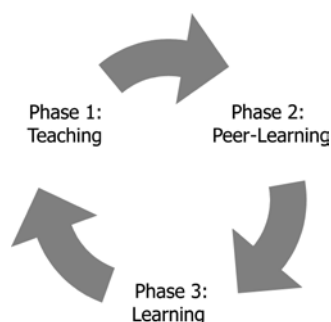


Figure 1. Phases of the integration process of the social dimension of Web 2.0 in teacher education

## 3. Research methodology

The research methodology within the present research comprises the research purpose and questions, the sample of the present research and the research design considered.

### 3.1. The research purpose and questions

The present research was conducted during the implementation of teaching techniques with the use of the social dimension of Web 2.0 within the *English for Specific Purposes* courses in the four-year professional Bachelor's study programs *Teacher of Pre-School Education* and *Teacher of Pre-School and Primary School Education* of the Department of Pedagogy at Riga Teacher Training and Educational Management Academy, Latvia, from September 2008 to May 2009 to examine the efficiency of teaching techniques with the use of the social dimension of Web 2.0 within the *English for Specific Purposes* course in pre-school and primary teacher education in order to promote

the use of the social dimension of Web 2.0 by pre-school and primary student teachers. Its topicality is determined by ever-increasing flow of information in which an important role is laid to the social dimension of Web 2.0 as a means of getting information and gaining experience. The research question is as follows: Have the teaching techniques with the use of the social dimension of Web 2.0 within the *English for Specific Purposes* course been efficient?

The four-year professional Bachelor's study programs *Teacher of Pre-School Education* and *Teacher of Pre-School and Primary School Education* are implemented at the Department of Pedagogy of Riga Teacher Training and Educational Management Academy in Latvia. The goal of studies in the four-year Bachelor's program is to prepare the bachelor as a university-educated operational professional for all fields of pre-school and primary teacher education with a basic knowledge of the relevant theories and with practical skills. A graduate has the opportunity to continue in the study of the pre-school and primary teacher education fields or other related fields in the Master's study program.

The professional bachelor study programmes *Teacher of Pre-School Education* and *Teacher of Pre-School and Primary School Education* offer the *English for Specific Purposes* courses to facilitate students' research success, to support preparation for inter-national Master and Ph.D. programmes in the European Union, further specialization in pre-school and primary teacher education and learning in a simulated environment.

The aim of the *English for Specific Purposes* course is determined as to improve pre-school and primary student teachers' communicative competence in English as an integral part of professional development for the participation in international research activities.

The *English for Specific Purposes* course involved a variety of teaching/learning techniques and/or activities with the use of the social dimension of Web 2.0 emphasizing peer-learning, namely, discussion, prepared talk and communication games and information-gap activities [10] to promote the use of the social dimension of Web 2.0 by the pre-school student teachers and the pre-school and primary student teachers.

The present research evaluates the efficiency of implemented teaching/learning techniques and/or activities with the use of the social dimension of Web 2.0 emphasizing peer-learning in studies.

## 3.2. The sample of the research

The sample selecting 22 pre-school student teachers and 25 pre-school and primary student teachers at the Department of Pedagogy of Riga Teacher Training and Educational Management Academy in Latvia was composed. All 47 pre-school and primary student teachers are at the beginning of the third semester in the second year of their Bachelor studies. The sample consisted of 47 female students which is a typical representation to the proportion of male and female pre-school and primary teachers in schools of Latvia. The age of the sample was from 19 to 24. 34 of the pre-school and primary student teachers had no working experience. 13 pre-school and primary student teachers had working experience in the fields different from their future speciality. Regarding their working experience the following fields were mentioned: voluntary social work, tourism industry and advertising industry. 30 of the students had certain expectations from the Bachelor programme and, consequently, from the *English for Specific Purposes* course, which were demonstrated in the answer to the question why they had chosen this programme. The use of Information and Communication Technology where the social dimension of Web 2.0 is a part in the studies was one of the answers.

## 3.3. Research design

This study is oriented towards the revealing of efficiency of teaching techniques with the use of the social dimension of Web 2.0 within the *English for Specific Purposes* course in pre-school and primary teacher education.

An explorative research has been used in the research. The study consisted of the following stages [1]: exploration of the contexts in the use of Web 2.0 in Latvia; thorough analysis of the documents, analysis of the students' feedback regarding their needs (content analysis), data processing, analysis and data interpretation and analysis of the results and elaboration of conclusions and hypothesis for further studies.

Needs analysis of three levels, namely, individual, organizational and professional [1] serves as a basis for designing a questionnaire to analyze the efficiency of teaching techniques with the use of the social dimension of Web 2.0 by the pre-school and primary student teachers.

## 4. Empirical results

The empirical results of the present study reveal the contexts in the use of Web 2.0 in Latvia thorough analysis of the documents and analysis of two surveys of the students' feedback regarding their needs (content analysis) before and after educators' contribution to the students' use of the social dimension of Web 2.0.

## 4.1. Teaching-learning in computer science in Latvia

In basic school and secondary school the number of lessons in computer science per week is one. The same amount of lessons is envisaged in all types of general education institutions in Latvia: comprehensive general education; humanitarian and social general education; general education in the fields of mathematics, sciences and techniques; and vocationally oriented general education.

However, it has to be said that in many schools there are extra hours planned for computer learning. Mostly this is the parents' initiative.

According to the computer science standards, the secondary school leavers have to master digital competence corresponding to the level of computer use for learning other school subjects.

Computer learning has not been set as a goal of the Bachelor programmes *Teacher of Pre-School Education* and *Teacher of Pre-School and Primary School Education* in Riga Teacher Training and Educational Management Academy.

It has to be marked that in the year 2008 there were no special requirements as the level of digital competence to study in the respective programme. Thus by providing pedagogical support to pre-school and primary student teachers and by using the social dimension of Web 2.0 in mastering academic content and, consequently, English for Specific Purposes (teaching-learning aids in an understandable language, consultancy, e-platform for collaborative work) students with different cognitive abilities transfer computer knowledge from one course to another.

## 4.2. Survey analysis

The following questionnaire was used to analyze the efficiency of teaching techniques with the use of the social dimension of Web 2.0 by the pre-school and primary student teachers:
- Question 1: Do you know the word Web 2.0?

- Question 2: Do you know the basic idea of Web 2.0?
- Question 3: Have you already used Web 2.0, namely, Facebook, Twitter, Wikipedia, etc?
- Question 4: Do you think Web 2.0 requires a lot of profound knowledge, namely, math, physics, etc?
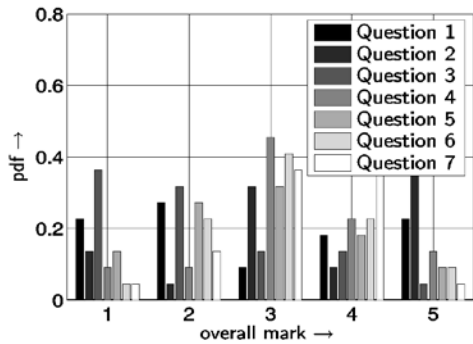


Figure 2: PDF (probability density function) of the pre-school student teachers' evaluation in September 2008



Figure 3: PDF (probability density function) of the primary student teachers' evaluation in September 2008

- Question 5: Do you think Web 2.0 is useful for your individual needs?
- Question 6: Do you think Web 2.0 is useful for your organizational use?
- Question 7: Do you think Web 2.0 is useful for your professional use?

The evaluation scale of five levels for each question is given where "1" means "disagree" and low level of experience in social dimension of Web 2.0 technologies and "5" points out "agree" and high level of the social dimension of Web 2.0. Survey 1 (Figure 2 and 3) reveals that use of the social dimension of Web 2.0 by the pre-school and primary student teachers is heterogeneous as well as the pre-school and primary student teachers do not realize the possibilities offered by Web 2.0 properly.

Between Survey 1 and 2 the *English for Specific Purposes* course involved a variety of teaching/learning techniques and/or activities with the use of the social dimension of Web 2.0 emphasizing peer-learning, namely, discussion, prepared talk and communication games and information-gap activities [10] to promote the use of the social dimension of
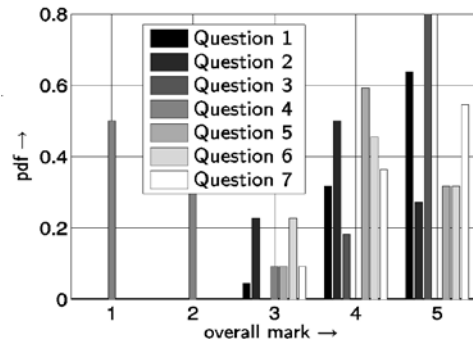


Figure 4: PDF (probability density function) of the pre-school student teachers' evaluation in May 2009
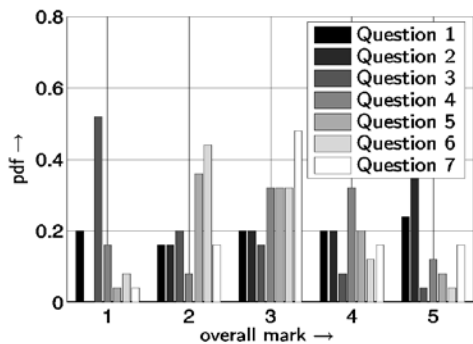


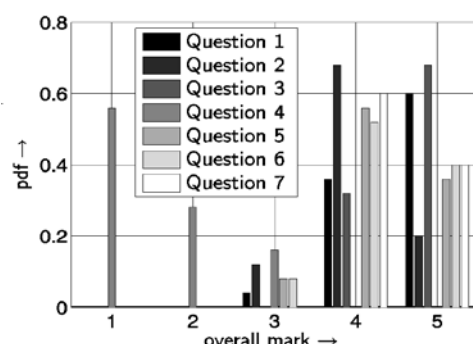Figure 5: PDF (probability density function) of the primary student teachers' evaluation in May 2009

Web 2.0 by the pre-school and primary student teachers. Then, the analysis of the second survey (Figure 4 and 5) reveals that the pre-school and primary student teachers' experience in the use of the social dimension of Web 2.0 has become homogeneous and the pre-school and primary student teachers have put the emphasis on the use of Web 2.0 for professional purposes.

Processing, analysis and interpretation of data gathered from the surveys of the pre-school and primary student teachers' experience in the course of the present empirical study reveal that teacher education with the emphasis on peer-learning contributes to the use of the social dimension of Web 2.0 by the pre-school and primary student teachers.

## 5. Discussion

The findings of the research allow drawing conclusions on the efficiency of the teaching techniques with the use of the social dimension of Web 2.0 emphasizing peer-learning within the English for Specific Purposes course in pre-school and primary teacher education.

Regarding *efficiency of the contribution to the pre-school and primary student teachers' use of the social dimension of Web 2.0* it is evident that the pre-school and primary student teachers widened their experience in the use of the social dimension of Web 2.0 for organizational and professional purposes with the implementation of the support system, namely, teaching techniques with the use of the social dimension of Web 2.0 emphasizing peer-learning within the *English for Specific Purposes* course in pre-school and primary teacher education.

The pre-school and primary student teachers' feedback in e-platform validates the findings [1]. Thus it might be stressed that teaching techniques with the use of the social dimension of Web 2.0 emphasizing peer-learning are efficient if they provide student's personal experience in use of the social dimension of Web 2.0 for organizational and professional purposes as conditions for creation of new knowledge: if students learning experience is supported by teaching techniques with the use of the social dimension of Web 2.0 for organizational and professional purposes, such as emphasizing peer-learning, students attain better learning outcomes if students needs are met and a support system with the emphasis on peer-learning is created that would secure their experience in the use of the social dimension of Web 2.0 for organizational and professional purposes, students demonstrate better learning outcomes, too.

The present research has *limitations*. The use of the social dimension of Web 2.0 was studied paying attention to the students' needs regarding the use of the social dimension of Web 2.0 in the *English for Specific Purposes* course as part of pre-school and primary teacher education, but it was studied in isolation from the work of educators of other courses and their contribution. If the results of the work of educators of other courses and their contribution had been available for analysis, different results could have been attained. There is a possibility to continue the study.

The following hypothesis for further studies is put forth: in order to develop the use of the social dimension of Web 2.0 by pre-school and primary student teachers it is necessary to promote pre-school and primary student teachers' use of the social dimension of Web 2.0 for organizational and professional purposes, as well as to create a favourable learning environment with the emphasis on peer-learning which supports learners' needs and provides successful use of the social dimension of Web 2.0 in a multicultural environment.

The findings of the research allow emphasizing the change from the student-centred to the peer-centred approach within teaching techniques with the use of the social dimension of Web 2.0.

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