A Suggested In-service Training Model Based on Turkish Preschool Teachers’ Conceptions for Sustainable Development

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Abstract

Nowadays, teacher professionalization has been upgrading and the status, training and working conditions of teachers have received a great deal of interest for sustainable education. It is recognized that if teachers are equipped with adequate professional knowledge and personal practical knowledge, they will become active curriculum planners at schools – and will have the potentials to transform from “cook” to “chef” in teaching. Therefore, in-service training of teachers is one of the most effective ways of sharing professional experiences and a medium of sustainable education in the society. Based on the existing literature, the present study was conducted to investigate the preschool teachers’ needs about in-service training courses (INSET) to suggest an effective INSET model based on their INSET needs assessment for sustainable education in a Turkish setting. A questionnaire consisting of fixed-response, open-ended and Likert-style questions was administered to preschool teachers (n=133) currently working in Tokat, one of the vicinities of Turkey, to obtain information about their background characteristics and to determine their conceptions and needs for INSET for sustainable education. The study comprises two steps. As a first stage, socio-demographic structures of the INSET participants are analyzed in respect to different variables. In the second stage, the preferences of the INSET participants are analyzed regarding before in-service training, while in-service training and after in-service training process.

Keywords: sustainable education, in-service training, Turkish context, preschool teachers, DENTIS, conception

Introduction

Life is an educative experience and there is an organic connection between education and personal experience as the idea of life-long education is considered to be the keystone of the learning society. In the past, in-service teacher training has become a priority; now it is also a big challenge for sustainable education. The primary purpose of in-service training is to increase the knowledge and skills of employees and thereby increase the potential of the school to attain its goals and objectives (Che Mohd Zulkifli, 2014). For the education, this process of assessing the needs of employees can be essentially the
process of determining the discrepancy between the existing and the needed competencies of the teachers. Educators understand it as a non-linear process in that they are used to evaluate and receive its results after some time, which is characteristic to complex processes (Salóte, 2015). It is recognized that if teachers are equipped with adequate professional knowledge and personal practical knowledge, they will become active curriculum planners at schools and will have the potentials to transform from “cook” to “chef” in teaching.

It is known that some of the teachers seem to have basic teaching skills, prerequisite skills, and some theoretical teaching knowledge and may feel as “cook” metaphorically when they have graduated from the universities. Salite (2008) emphasizes that current teacher education focuses on the preparation of teachers for reflective practice and further suggests that teachers conducting reflective professional activities have to be also a researcher. At this point, it is necessary for them to be equipped with more recent knowledge metaphorically as a “Chef” to make more contribution to the sustainable education in the society in which they have been already involved. In other words, future teachers should assume the role of action researchers as their societal action expands teachers’ roles from a classroom technician to an active political agent (Iliško, 2007). Therefore, as the “cook versus chef” metaphor implies, they need to develop themselves to be a “Master” by the medium of in-service teacher training courses, which is the short-cut to attain their goals for sustainable education in the society. Thus, in-service training of teachers is one of the most effective ways of sharing professional experiences. In fact, it is a sine qua non for any teachers having spent some years in teaching. Furthermore, in-set training courses can be an agent for educational change for the teachers who are ready to expose themselves to the innovations and the challenges of teaching. A teacher should be an action researcher and should continue to learn throughout his/her life as the education is a long life process. According to Tagorero, who won the Nobel Prize in literature in 1913, “A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to bum its own flame.” Hence, no man or woman should decide to teach unless he or she is determined to learn because a true teacher is a student all throughout his life. Nowadays, teachers need to equip themselves with the most recent knowledge to balance what they know and the technological developments for sustainable education (Salite, 2015; Ortega & Fuentes, 2015; Štrode, 2013; Bentham, 2013; Cincera, 2013; Sakk, 2013; Heba EL-Deghaidy, 2012; Armstrong & LeHew, 2011; Bakutytė & Ušėckienė, 2010; Kostoulas-Makrakis, 2010; Saluma, 2007; Karagiorgi & Symeou, 2008; Wong, 2003). Based on the existing literature, this current study was conducted to analyze the preschool teachers’ needs about in-service training courses (INSET), to design and suggest an effective INSET model regarding their INSET needs assessment in Turkish context as determination, designing and suggesting an INSET model provide a context to discuss ways to enhance the teaching in preschool settings in different socio-cultural context for sustainable development. The INSET model should present challenges for the deliverers as in order for this course to be effective it needs to focus on influencing teachers’ attitudes towards themselves, others and the world. The aim of this course is to lead teachers towards a self-reflective awareness of their teaching philosophy and their commitment to make a difference in education and society at a larger scale. Thus, the course provided teachers with the opportunity to examine and evaluate their beliefs. This becomes a prerogative for implementing ideals of a sustainable education in practice.
At this point, the participants may need to transformative learning which is a process involving a change in worldviews and habits of thinking and offers teachers avenues for getting involved in educational processes that enact their sense of social responsibility (Cranton, 1994; Mezirow, 1991).

Method

A questionnaire named as Determining Educational Needs of Teachers In-Service (DENTIS) was developed by the researcher and conducted to obtain the study data. It was constructed to obtain needs, conceptions and preferences of the teachers for sustainability. Reliability co-efficiency of the questionnaire was found to be .74. The three sections in the questionnaire consist of fixed-response, open-ended and Likert-style questions. In the first section, DENTIS displays teachers’ background information about INSET. In the second section, DENTIS compromises 26 likert type questions ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). 9 out of 26 items includes the options related to Before-INSET course, 9 out of 26 items comprise the options regarding While-INSET course, and 8 out of 26 items involve the options related to After-INSET course. In the third section, DENTIS includes an open-ended part designed to elicit what the participants think about INSET courses in general. Hence, DENTIS was administered to preschool teachers (n=133) currently working in Tokat, one of the vicinities of Turkey, to obtain information about their background characteristics and also to determine their conceptions and needs for INSET to propose a new instructional INSET model for sustainable development. In this process, content analysis technique and descriptive statistical analysis were used to analyze the data obtained via Likert-style items. 5 columns 4 intervals technique was used to determine the mean scoring intervals. The value of this interval is $4/5=0.8$. Cross-tab procedure was used to classify participants’ preferences, conceptions and needs to design a new instructional INSET model.

The study comprises two steps. In the first stage, socio-demographic structures of the INSET participants are analyzed in respect of different variables including the school types they graduated from, the number of the participation to INSET courses, the duration and the time and the academic career of the lecturer of the INSET courses. In the second stage, the preferences of the INSET participants are analyzed regarding before in-service training, while in-service training and after in-service training process. 22 out of 26 items are above the cut-off point of 2,60. A new INSET instructional model for the preschool teachers in Turkey is suggested on the basis of the conceptions and preferences of the INSET participants, 2,60 and above as the cut-off point.

Findings

The findings of the study are evaluated in two phases. In talking about the demographic information of the participants 44% (59) of the participants have bachelors, 26% (34) of them have pre-bachelor and 21% (28) of them have high school degrees. 52% (69) of the teachers explained that they never participated the INSET courses before while 48% (31) of them stated that they did not participate in any INSET courses. 26% (34) stated that they participated in INSET courses only once, 21% (28) explained that they participated in twice, and 5% (7) of them pointed out that they participated in INSET courses more than twice. For the place where the INSET course
to be offered, 70% (93) of them wanted INSET courses to be designed in their districts while 23% (30) required it to be planned in one of the coastal cities of Turkey. In talking about the lecturer of the INSET courses, 31% (41) of the participants wanted the experienced teachers to give a lecture to them while 60% (79) of them required the academicians to give a lecture. Given the time of the course, 53% (71) of the participants wanted the INSET courses to be planned at the beginning of the term while 34% (45) of them required it to be designed at the end of the term.

The findings are evaluated with regard to the extent of which the teachers’ needs for the INSET course are met by utilizing the descriptors of “Never”, “Low level”, “Middle level”, “Higher level”, and “the Highest level”. A new INSET instructional model is suggested and designed on the basis of the level of importance or the INSET items such as, “Important”, “Quite important” and “Very important” by omitting the items with “Not important at all” and “With little importance” options.

Table 1

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>X</th>
<th>Importance</th>
<th>Meeting Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>The INSET courses can be carried out in any schools under the title of Ministry of National Education</td>
<td>3.24</td>
<td>Important</td>
<td>Middle Level</td>
</tr>
<tr>
<td>6</td>
<td>It is necessary that MNE (Ministry of National Education) cooperate with the Universities in INSET planning</td>
<td>4.39</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>7</td>
<td>The INSET courses should be arranged according to the needs and interest of the participants</td>
<td>4.47</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>9</td>
<td>Each preschool teacher should participate INSET once a 5 year period</td>
<td>4.37</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>13</td>
<td>The center of INSET courses should be equipped with technological tools like data show and computers</td>
<td>4.50</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>18</td>
<td>At the end of the in-service training course, the knowledge pre-school teachers will gain is important</td>
<td>4.73</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>21</td>
<td>It is advantageous for me to visit historic and touristic places thanks to INSET training courses.</td>
<td>3.65</td>
<td>Quite Important</td>
<td>Higher Level</td>
</tr>
</tbody>
</table>

Table 1 shows the participants’ conceptions about the “before-in-service training” courses. 2 out of 9 items related to participants’ conceptions about before in-service training courses are removed due to the selection criteria of the INSET items formed. The participants are of the opinion that 7 items are ideal to display the conceptions of the participants about the before in-service training courses. The participants prefer that 5 out of 7 items including 6, 7, 9, 13, 18 meet the participants INSET needs to a highest level while 1 of the items meets their INSET needs to a higher level and 1 of them meets their needs to middle level. As education is a life-long process, every teacher is a learner. According to the report by The International Commission on Education about the needs of in-service training as a new concept of sustainable education, every individual must be in a position to keep learning throughout his life. Relevant scholarly literature in the proposed INSET course generally allow the course participants to explore, discuss and criticize the theories and their own teaching skills. The table shows that the participants seem to be reluctant and open for the positive change in education as a role of change agent for sustainability.
Table 2

<table>
<thead>
<tr>
<th>No</th>
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<th>X</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>The INSET course should be enriched by pedagogical courses of preschool department</td>
<td>4.33</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>4</td>
<td>It is important for me to share teaching experiences with the preschool teachers from various provinces</td>
<td>4.42</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>8</td>
<td>The INSET course should be enriched by professional courses of preschool department</td>
<td>4.45</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>10</td>
<td>The course content of the INSET should be determined by the Board of INSET</td>
<td>3.14</td>
<td>Important</td>
<td>Middle Level</td>
</tr>
<tr>
<td>17</td>
<td>At the end of the in-service training course, pre-school teachers are equipped with mostly practicing knowledge</td>
<td>4.40</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>19</td>
<td>At the end of the in-service training course, the interaction of the pre-school teachers with the participants from different cities is important from socio-cultural aspect</td>
<td>4.43</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>20</td>
<td>The courses in the INSET training should be carried out with the interaction and co-operation of trainers and trainee</td>
<td>4.47</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
</tbody>
</table>

Table 2 displays the participants’ conceptions about the “while-in-service training” courses. 2 out of 9 items related to participants’ conceptions about while in-service training courses are removed due to the selection criteria of the INSET items formed. The participants agree that 7 items are ideal to explain the conceptions of the participants about the while in-service training courses. The participants are of the opinion that 6 out of 7 items including the Items 3, 4, 8, 17, 19 and 20 meet the participants INSET needs to a highest level while 1 of the items, Item 10, meets their INSET needs to middle level. In identifying the training needs, many aspects have to be taken into consideration. It is really meaningful to see the very high reflections of the results of the Items 8,3 and 17 respectively in the mission-oriented pedagogy evolution of cooperative relations which is a self-evident requirement, a real condition for pedagogical relations which develop as complex and non-linear in order to find the answers that allow the re-orientation of teacher education towards sustainable development to realize (Salite, 2015). It is true that only after some time, pedagogy can see the results of its work. Various formulations of an educator’s mission also highlight it as a philosopher’s, an artist’s and a prophet’s missions. A teacher’s mission is to look at the world and to see more of what is known for society, education and science.

Table 3 explains the participants’ conceptions about the “after-in-service training” courses. 8 of 26 items related to participants’ conceptions about after in-service training courses are included in the INSET instructional design due to the selection criteria of the INSET items formed. The participants have pointed out that 8 items are ideal to display the conceptions of the participants about the after in-service training courses. The participants prefer that 2 out of 8 items including, 16 and 22 meet the participants INSET needs to the highest level while 3 of the items numbered 12, 23 and 25 meet their INSET needs to a higher level and 3 of them, Items 14, 15 and 24 meet their needs to a middle level. This shows that training program that is planned and implemented well will have a positive effect on students, teachers and schools for sustainable education.
In addition, Ficarra, and Quinn (2014) state that given the number and variety of skills associated with effective evidence-based classroom management, pre-service preparation in this area will undoubtedly need to be supplemented by in-service endeavors. Moreover, the results they indicate that teachers develop skills in the area of classroom management via both pre-service and in-service sources, with the latter source being more prominent according to participants’ self-reports.

Table 3

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>At the end of the in-service training course, pre-school teachers should demonstrate a sample lesson</td>
<td>3.69</td>
<td>Quite Important</td>
<td>Higher Level</td>
</tr>
<tr>
<td>14</td>
<td>At the end of the in-service training course, incentives the pre-school teachers will gain are important</td>
<td>2.96</td>
<td>Important</td>
<td>Middle Level</td>
</tr>
<tr>
<td>15</td>
<td>At the end of the in-service training course, pre-school teachers should take proficiency exam about the course</td>
<td>3.18</td>
<td>Important</td>
<td>Middle Level</td>
</tr>
<tr>
<td>16</td>
<td>At the end of the in-service training course, pre-school teachers are to be given participation certificate</td>
<td>4.51</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>22</td>
<td>By the end of the in-service training course, pre-school teachers will have been taught how to manipulate technologic devices in the classroom</td>
<td>4.33</td>
<td>Very Important</td>
<td>Highest Level</td>
</tr>
<tr>
<td>23</td>
<td>At the end of the in-service training course, participants should be given incentives</td>
<td>3.45</td>
<td>Quite Important</td>
<td>Higher Level</td>
</tr>
<tr>
<td>24</td>
<td>At the end of the in-service training course, pre-school teachers should be made to present projects</td>
<td>3.37</td>
<td>Important</td>
<td>Middle Level</td>
</tr>
<tr>
<td>25</td>
<td>At the end of the in-service training course, INSET educational centers should ask the participants to complete a rapport about the productivity of the courses</td>
<td>4.10</td>
<td>Quite Important</td>
<td>Higher Level</td>
</tr>
</tbody>
</table>

Discussion

It is a critical period of tremendous changes in the Turkish education system as there is a transfer from teacher-centered model of teaching to a more learner-centered models. At this point, teachers’ professional roles have changed from the one of a transmitter of general curriculum to that of a designer of individual educational programs. The study abounds that today many teachers have chosen to have active roles to reform the curricula and teaching approaches in their schools (Pipere and Miçule, 2014; Flores, et al., 2014; Strode, 2013; Berziña, 2011; Pipere, Reunamo & Marion, 2010; Saluma, 2007; Tuisk, 2007). As the recent development in education opens the possibility for teachers to be the initiators of change, they are forced to use active teaching methods as the agents of transformation. Ilisko and her colleagues (2010) focus on the in-service teachers’ points of views regarding their role as researchers and distinguish a key term for teachers’ voice, which is defined as an expression of teachers’ frames of reference. As is outlined by the authors of the paper, action research initiated by teachers provides a framework to strengthen the teachers’ voice. Soobik (2014) also reports that the teaching methods used by the teachers of technology education in Estonian schools shifted from the traditional approach to teaching towards a more constructivist approach.
The teachers actively working at the schools and have a high expertise in a subject matter have to choose in-set courses to cover the gap between pre-service teachers who are still being educated mostly by the modern methods and themselves who once were educated by the traditional one in order to adapt to the tremendous changes in education for sustainability. The aim of this study was to lead teachers towards a self-reflective awareness of their teaching philosophy and their commitment to make a difference in education and society at a larger scale. Thus, it is seen in this study that research provides teachers with the opportunity to examine and evaluate their beliefs, which becomes a prerogative to implement the ideals for a sustainable education in practice, which is also stated by Iliško (2007) in her study. In this study, teacher opinions about the inset courses were investigated in relation to three stages as pre-inset course, while-inset course and post-inset course. The study put forward some important outcomes in relation to the stages in question. At the before-INSET course, the participants prefer that 5 out of 7 items including the Items 6, 7, 9, 13 and 18 meet the participants INSET needs to the highest level while 1 of the items meets their INSET needs to a higher level and 1 of them meets their needs to middle level. According to Reupert and Woodcock (2010), in-service teachers utilize classroom management practices in which they feel confident in applying even if some other strategies have been shown to be more effective. It was acknowledged that teachers begin the program with the high expertise in their field of teaching and a desire to deepen their knowledge (Iliško, 2007). The result shows that the teachers are ready to accept and internalize the new policies and roles as curriculum leaders to ensure the sustainability of curriculum development as is also put forth by Viirpalu and her colleagues (2014) and Ülker & Mentis Tas (2009). For the while – INSET course, the participants are of the opinion that the INSET course they would be involved in should be enriched by both pedagogical and professional courses and their mission seems to look at the world and to see more of what is known for society, education and science like in the mission-oriented pedagogy science. The participants seem to be exposed to support and attain mission driven pedagogy. Therefore, openness for the use of new, complex and developing processes are recommended and this need is also supported by the BBCC action research issue about the reorientation of teacher education towards sustainable development which clearly points out the need for promoting and increasing the society’s sustainability. Salite (2015) supports that the use of the concept of mission-oriented pedagogy now helps to reflect those cases when pedagogy and educators have not lost the highest humane ideals and the function of searching for sustainability which is characteristic to pedagogy. In this course, the essence of science and the mission of a teacher is its orientation to sustainability by the inclusion of mission-driven pedagogy that fosters the refreshment of the society. Additionally, Sakk (2013) also explains that it is important to reorient teacher education and social skills by forming the basic skills of learning and using different websites for studying since this will become crucial in the teaching of new generation due to the rapid changes of the society. The participants are of the opinion that they strongly need practical wisdom to maintain sustainable development in the society in which they live. Salite (2015) also suggested the theme of practical wisdom in participative action research which initiated an attention to self-potentiation and the research of the development of complex networks features for the reorientation of education towards sustainability. At after – INSET course, the participants are of the opinion that they are strongly in need of certificates and incentives when they have completed the INSET course to maintain sustainability in society in
which they have lived. In line with this, Ficarra and Quinn (2014) found that certified teachers were good at reflecting on how they learned evidence-based classroom management practices. At the end of the INSET course, the participants wanted to be equipped with prerequisite skills to prepare projects in teaching and manipulating the technological devices as Pontes-Pedrajas and Varo-Martinez (2014) support that future teachers and environmental educators consider that concept mapping is a valuable tool to represent their knowledge about environmental education, to encourage reflexive and collaborative learning, to improve teaching communicative abilities and to use effectively ICT in the classroom. In line with this, Redman (2013) also acknowledges that teacher education for sustainability is a central part of integrating sustainability into classrooms and schools and it encompasses different forms of knowledge that embraces the normative, dynamic and action-oriented nature of sustainability. In addition to this, Wade (2012) puts forward the potential of new technologies in helping educators to play an active role in creating and promoting the learning to develop local and global communities for the sake of transformative learning for sustainable development.

Conclusion and Suggestions

It is clearly understood from the discussion above that in-service training is important for teachers at school as a tool for professional development and to escalate their knowledge and quality of teaching and learning for sustainable education in the society they have involved. Teachers are facing new challenges and changes in the education world and it is important for teachers to equip themselves with new knowledge and skills by attending in-service training as an important agent of sustainability in the society in order to play an important and effective role as an educator. Furthermore, the effectiveness of in-service training is also important to ensure that the training is appropriate and brings positive effect to the teachers. The effectiveness of the in-service training is influenced by teacher’s attitudes, needs analysis and the teaching / learning methods used in the IN-SET training program for sustainable development. Needs assessment in teacher education can be challenging for a number of reasons. First, the importance of responding to teacher needs is not always acknowledged (Campbell & Kane, 2000). Then, as teachers are often attributed a minimal role in the identification of their own needs, it is important to establish a balance between INSET and individual needs for the purposes of teacher professional development for sustainable development.

As a result of the analysis of the findings above, the participants prefer that 13 out of 22 items including the Items 6, 7, 9, 13, 18, 3, 4, 8, 17, 19, 20, 16 and 22 meet the participants INSET needs to the highest level while 4 of the items, 21, 12, 23 and 25 meet their INSET needs to a higher level and 5 of the items involving 2, 10, 14, 15 and 24 meet their needs to a middle level on the basis of the criteria ranging from the highest level (5.00) to the middle level (2.60).

In conclusion, a new instructional INSET model is constructed based on the needs of the teachers in question above as in the three phases as before-in-service; while-in-service and after-in-service training courses to foster the sustainable education in the society. The results show that the teachers are ready to accept and internalize new policies and roles as curriculum leaders to ensure the sustainability of curriculum development. The participants agree that the INSET course they would be involved should be enriched by both pedagogical and professional courses and their mission seems to look...
at the world and to see more of what is known for society, education and science as is also in the mission-oriented pedagogy. The participants want to be equipped with pre-requisite skills to prepare projects in teaching and to manipulate the technological devices for sustainable education.

Given the preschool teachers’ conceptions and preferences on INSET course, a multitude questions warrant further research by using the survey in question as research tools, for example: Is there a difference between male and female; pre-bachelor and bachelor; INSET course participant and non-participant preschool teachers’ in relation to their conceptions and preferences on INSET course for sustainable education. There is generally much to learn about preschool teachers with regard to their conceptions, preferences and views on INSET courses for sustainable education. In addition to these, it is useful to draw attention to the main limitations the researcher faced in conducting this research. First, as in all self-report questionnaires, DENTIS provides subjective data; the validity and the reliability of DENTIS need to be further evaluated, most likely by additional research techniques. Second, the participants were just limited to the teachers working in Tokat district of Turkey. Therefore, results from this study are limited in this extent and follow-up studies are necessary in order to verify the consistency and generalizability of the presented data. Third, the study is limited to the Turkish educational system and culture. Therefore, further research in other countries is recommended to broaden our knowledge and understanding of the cross-cultural dimensions of teachers’ conceptions and implicit theories of creativity for sustainable education.

Note: This study is the revised and the rearranged form of the submission in 2012 in Tunisia of IOSTE XV International Symposium.

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An Exploration of Teaching Practices of Private, Public, and Public-Private EFL Teachers in Iran

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Abstract
This study investigates the practices of public (high) school, private language institute, and public-private teachers. In particular, it aims at addressing the role of contextual factors, the variations teachers introduce to cope with them, and the degree of sustainable behaviour among these three groups of teachers. High school teachers consisted of those who taught only in high schools and the ones teaching both in high schools and private language institutes. For this purpose, classroom practices of 60 EFL teachers (N=20 per group) with 3 to 6 years of teaching experience and BA degree in TEF) were compared in terms of group/pair work, teacher talking time, L1 use, questioning, corrective feedback, and coverage of language skills. The findings of the study indicate that a significant difference exists among these three groups of teachers in terms of their practices. It is noteworthy that in the same teaching context of high school, the practices of teachers with and without private language teaching experience are significantly dissimilar except in the duration of pair/group work activities and the rates of repetition and explicit correction. This study suggests that high school EFL teachers with teaching experience in private language institutes subscribe more closely to the tenets of communicative language teaching and thus can act as powerful agents of sustainable language teaching in Iranian public schools.

Keywords: EFL teachers, practices, public, private, teaching context

Introduction
In recent years, influenced by socio-constructivism and sociocultural theory, scholars in the field have identified that environment and contextual factors play an important role in teaching and learning. In these schools of thought, a lot of attention is paid to effective teaching and the relevant factors in various school contexts across cultures. Based on the sociocultural perspective, human learning as a social activity, which is dynamic, takes place in social and physical contexts (Rogoff, 2003; Vygotsky, 1978). Sociocultural theory aims at explaining the relationship between human mental operation and the cultural and the contextual factors in which this functioning takes place (Wertsch, 1995).

Teachers’ beliefs, practices and attitudes are closely related to teachers’ strategies used to cope with challenges that they encounter in their profession, and they also
influence learners’ learning environment, motivation, and achievement (Borg, 2007). Teachers’ practices and actions in classroom are affected by their beliefs and cognitions about language learning and teaching (Farrell, 2006; Kennedy, 1996). According to them, teaching actions may be connected to beliefs about contexts and teaching situations. However, teachers’ practices do not always reflect their beliefs and the teaching context may enforce them to do some tasks and activities, which are against their beliefs, to satisfy their students or the institutes in which they teach (Philip & Borg, 2009; Rahimi & Nabilou, 2010).

One of the characteristics of good teachers is their sustainable behaviour in the classroom. Besong and Holland (2015) define sustainability as something continuous for a long period of time at a particular level. Redman (2013) indicates that the change of behaviour is the result of sustainability education. He has enumerated the barriers of sustainability education including standardized test, new teacher work-load, the lack of knowledge about sustainability and the lack of external and internal support. He proposes teachers’ enthusiasm in spite of heavy work-load, student interest, adaptability to sustainability lessons, and sustainability curriculum adapted by a knowledgeable teacher as the opportunities for sustainability education.

Teaching EFL is a challenging task in Iran. English is taught in Iranian public schools and universities with the following key objectives: having access to the newest technological and scientific developments, dealing with a large amount of information in the virtual world particularly on the net, and promoting intercultural understanding and exchanges with the global society (Razmjoo & Riazi, 2006a). In spite of these noble causes, teaching and learning English in Iran is not satisfactory in public schools (Bagheri, 1994). Therefore, to remedy the weaknesses of teaching English at public schools on the one hand and the necessity of the English language acquisition on the other hand, various private language schools or so-called institutes have been established in all corners of the country.

These developments have culminated in the emergence of multiple contexts of teaching for Iranian EFL teachers. The context of teaching and contextual factors is certainly vital elements in successful teaching; they should to be taken into consideration in examining foreign language teaching (Engin, 2014; Razmjoo & Riazi, 2006b). There are two important contexts for teaching foreign languages and English in particular, in Iran: public schools such as high schools and private language institutes. In public schools, English is taught as a mandatory subject from grade one in junior high school to pre-university, and nation-wide textbooks are developed and published by the Ministry of Education. In private language institutes, globally used ELT packages and series such as American English Files, Interchange, Headway, Top Notch, etc. are used in each institute depending on their material evaluation and selection panels. The present study explores the interaction between teaching context and the practices of three types of teachers, namely, a) just public school teachers (PSTs), b) private language institutes teachers (PLITs) and c) public-private school teachers (PPTs). By investigating and comparing these three types of teachers, the researchers can understand which type of teachers has more sustainable behaviours and practices in their teaching context that correspond to the latest teaching methods and approaches, and consequently this type of teachers can act as a good model for other teachers in order to introduce more sustainable practices in their classrooms.
Review of the Literature

In the last three or four decades, the aims of foreign language learning and teaching have changed to accommodate the emerging needs of the global society (Huhn, 2012). Traditionally, the majority of students participated in a foreign language class in order to learn vocabulary and grammar so that they could read and translate in that language. However, the current purposes of language learning and teaching require far more than just acquiring grammatical competence and focus on communication among people and use language as an instrument to acquire knowledge (National Standards in Foreign Language Education Project, 2006). Learners should be equipped with sociolinguistic and strategic competences so that they can communicate in real life situations (Schick & Nelson, 2001). As a result, teachers cannot assume the role of a person who just imparts grammatical knowledge. They should take the role of a guide in the classroom, providing an interactive and communicative classroom and giving appropriate feedback to learners with the aim of developing their communicative competence besides linguistic competence (Shrum & Glisan, 2010).

One aspect of teachers’ success for teaching in their classes is participating in teacher education and training programs. Richards (1990) has proposed the term of second language teacher education to cover the preparation (training and education) of language teachers. In accordance with Milner (2010), teacher preparation includes teachers’ building a repertoire of outlook, attitudes, knowledge, belief, and skills for being successful in the process of language teaching. He has pointed out that teacher education can have a significant role in teaching and in preparing instructors for the diversity they will expose in their classes. He has also indicated that just having an academic degree, whether undergraduate or graduate, in special fields such as mathematics, history, or English cannot guarantee the accomplishment of the complicated task of teaching because teaching needs more than learning or knowing a particular content or subject matter.

Numerous scholars and theorists in education have stressed the importance of social, economic, institutional, and cultural contexts in teaching and learning. Fenwick and Cooper (2013) investigated the effect of context on teaching and learning. Researchers in some countries such as Australia and the United States have documented the effect of socio-economic background on teaching and learning. They have revealed how people with high socio-economic backgrounds change the curriculum at schools so that their needs are maintained and met (Buckley, 2010; Gamoran, 2010; Oakes, 2005; Teese & Polesel, 2003).

School context can also impact on the quality of teaching and learning. Kuntz (1997) delved into the features of fourteen language institutes through interview and observation in Yemen. It was shown that they were different from each other in various factors such as teacher qualification, evaluation, tuition, and program design. It was also indicated that teachers and program managers agreed on several issues: in-service teacher training programs, peer observation, and the recruitment of skilled and trained language teachers. Abdan (1991) investigated teachers’ practices and their course books in private language institutes and public schools in Saudi Arabia. He found that there was no major difference between these two centres in course books and teaching methods. The superiority of learners in private centres was caused owing to greater language exposure and the fact they started learning English at an earlier age.

Keihanian (2011) reported that there was a difference between high school and private language institutes in their teaching methodology. In high school, classes were
mainly teacher oriented, the text based materials were common, and the activities more emphasized drills and imitation. Vocabulary and grammar received the highest attention. On the other hand, the learners in private language institutes were more active in the process of language learning and acquiring the main skills. Musavi (2001) indicated that English taught in Iranian high schools is grammar centred and communicative skills are mostly ignored.

Pazhouhesh (2014) carried out a comparative study and considered teachers and learners in private and public schools at three levels of approach, design and procedures. He found that there were great changes among teachers at the two levels of approach and design in both contexts. It became evident that teachers had a great preference for more functional-interactive approaches. It was also indicated that teachers had a tendency for a more communicative based syllabus including changes in objectives, roles of learners and teachers.

In recent years, several studies have provided evidence that private school students outperform public school students in their academic test performance (Amjad & MacLeod, 2014; Dronkers & Robert, 2008; French & Kingdon, 2010; Hannaway, 1991; Jimenez & Lockhead 1995; Tooley & Dixon, 2006). For instance, Tooley and Dixon (2006) reported a study in Ghana, Nigeria and India which was a part of a larger study in China, India and Kenya. They investigated students’ performance in public and private schools taking into consideration students’ household income and wealth indicators, parent education, tribe, religion and intelligence. Their criteria for measuring students’ performance were English and mathematics tests. The results showed that in every respect students’ achievement scores were significantly higher in private schools. Moreover, Amjad and McLeod (2014) addressed students’ performance in public and private schools in Pakistan. The results of the study demonstrated that private school students performed better compared to their counterparts in public schools. It was also shown that public-private partnership school students outperform students in government or public schools.

As these studies demonstrate, learners’ achievements in public and private school contexts have received much attention in literature. On the other hand, teachers’ practices in these two contexts, especially in Iranian EFL context with its distinct private and public sectors of ELT have not been thoroughly investigated. Teachers play a crucial part in providing optimal conditions for their students to learn the language successfully (Fareh & Saeed, 2011; Sadeghi & Babaie, 2009). In fact, “one of the most often-expressed statement about teaching is that nothing is more central to student learning than the quality of teachers” (Galluzzo, 2005, p. 142). However, their practices can be influenced and shaped through institutional pressure, corporate sector policies and assigned textbooks, some of which may even limit teachers’ creativity and or go against their belief system (Azizfar, Koosha, & Lotfi, 2010; Dhamardeh, 2009; Richards, 2002).

Given this, an important but under-investigated case of EFL teachers in Iran and similar contexts in the world is that there is a growing group of teachers who teach in both private and public schools simultaneously. An investigation of these teachers’ practices and their openness to implement more indices of communicative and sustainable language teaching in public schools seems to be a novel and promising line of inquiry since such teachers can be the best agents of sustainable reforms especially in the public sector.
To address the possible relationship between these contextual factors and EFL teachers’ practices, this study aims to investigate the practices of private language school EFL teachers, public school EFL teachers, and more importantly the practices of those who teach in both of these contexts. To achieve this aim, the following research questions were formulated:

1. Are there any significant differences in the English teaching practices of Private Language Institute Teachers (PLITs), Public School Teachers (PSTs), and Public-Private Teachers (PPTs)?
2. Is there any significant difference in the English teaching practices of PPTs and their PSTs in high schools?

Context of the Study

The Iranian educational system has experienced many changes since the foundation of ‘Dar Ul-Fonun’ (the House of Techniques) in 1851, where foreign language learning and teaching began (Razmjoo & Riazi, 2006a). However, the current mainstream educational system has the following key phases: Primary school, Junior high school, Senior high school and Pre-University. Formal instruction of English as a foreign language starts with one session per week in junior high schools. For more than three decades, books at that level were written based on audio-lingual method, but most of the teachers followed grammar translation method (GTM) in teaching those materials. The newly released materials include ingredients of communicative syllabi while similar teaching trends are still prevalent in these classes. After junior high school, students start senior high school and pre-university lasting for three years and one year, respectively. Textbooks used in high school merge the situational language teaching with the reading method for introducing vocabulary items and structural patterns through reading passages (Razmjoo & Riazi, 2006b). At the pre-university level, English is taught for four hours per week and the main focus is on reading comprehension and vocabulary development.

In most high school classes, the number of students is over 20 or 30 and teachers in these classes have minimum teaching resources with little or no access to computers, overhead projectors, and flash cards. In private language institutes, however, the number of learners ranges from 5 to 15. Teachers have more opportunities for using complementary materials and interacting with students. In this context, books are more communicative and are published by Oxford, Cambridge or Longman such as Interchange, American English File, Headway and Top Notch.

Method

Participants

Sixty EFL teachers with a proportion of 20 teachers from public (high) school, just private language school, and both public and private schools were selected based on purposive and convenience sampling. They all shared Kurdish as their mother tongue and were employed on a full or part-time basis in public or private schools or both in Kurdistan Province, Iran. The teachers’ demographic information is presented in Table 1.
Table 1

<table>
<thead>
<tr>
<th>Teachers</th>
<th>Gender</th>
<th>Age</th>
<th>Degree</th>
<th>Teaching Experience</th>
<th>In-service Teacher training</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>20–25</td>
<td>25–30</td>
<td>30–35</td>
</tr>
<tr>
<td>PST</td>
<td>16</td>
<td>4</td>
<td>9</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>PLIT</td>
<td>14</td>
<td>6</td>
<td>11</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>PPT</td>
<td>18</td>
<td>2</td>
<td>10</td>
<td>9</td>
<td>1</td>
</tr>
</tbody>
</table>

**Note.** PST: Public School Teacher, PLIT: Private Language Institute Teacher, PPT: Public-Private Teacher

As it is clear from Table 1, there was an attempt to choose the participants who were relatively homogeneous regarding their gender, age, degree, and experience. Most of the teachers were male and BA holders and the majority of them had less than six years of experience. Compared to PLITs and PPTs, fewer PSTs received in-service teacher training as this context does not mandate systematic professional development.

The teachers were informed that the observation and the recorded data will be used to provide an image of ELT practices in this region and their identities will be kept confidential in line with the ethics of conducting research on human subjects.

**Procedure**

To measure the teachers’ practices in the classroom, the researchers ran a review of the main sources on ELT such as *The practice of English language teaching* by Harmer and *A course in language teaching* by Ur, etc. and identified key measurable and observable indices of an effective EFL class. After preparing a checklist of 15 elements, the researchers asked a group of experts in applied linguistics, associate and assistant professors in applied linguistics (N=20) to rate the given list in terms of their importance and contribution to effective language learning on a scale of 1 (least important) to 4 (most important). Having considered the role of context, measurability, and manageability of the scale of the study and the results of the experts’ ratings, the researchers decided to limit their observation to the following key categories of teachers’ practices: group/pair work activities, teacher talking time (TTT), questioning types, teachers’ L1 use, corrective feedback types, and coverage of language skills.

This study focused on the frequency and the duration of pair/group work activities for each teacher in their respective contexts. To measure the frequency and duration of pair/group work activities, the researchers analysed all the recordings and searched for all instances of activities in which two students or a group of students worked together. Moreover, the total class time when teachers spoke in the classroom was considered as teacher talking time (TTT) and whenever they switched from English to L1 (Persian or Kurdish), it was considered as an instance of L1 use. As far as questioning is concerned, this study accounted for the frequency of both display questions and referential questions. Finally, this study adopted Ellis’s (2008) classification of corrective feedback (CF) to account for their occurrences in the observed classes, instances of which are provided in Table 2.
Table 2
Different Types of Corrective Feedback (Adopted from Ellis, 2008, pp. 227–228)

<table>
<thead>
<tr>
<th>CF types</th>
<th>Description</th>
<th>Examples used in this study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request for clarification</td>
<td>An utterance that elicits clarification of the preceding utterance.</td>
<td>S: You do a mistake. T: What?</td>
</tr>
<tr>
<td>Confirmation check</td>
<td>An utterance immediately following the previous speaker utterance intended to confirm that the utterance was understood.</td>
<td>S: UN does not like people right in some countries. T: You mean it is not satisfied with human rights?</td>
</tr>
<tr>
<td>Recast</td>
<td>An utterance that rephrases the learners’ utterance by changing one or more components while still referring to its central meaning.</td>
<td>S: There is many cars there. T: Yes there are many cars there.</td>
</tr>
<tr>
<td>Repetition</td>
<td>An utterance that repeats the learners’ erroneous utterance highlighting the error.</td>
<td>S: He eats water. T: He eats water?</td>
</tr>
<tr>
<td>Metalinguistic feedback</td>
<td>An utterance that provides comments, information, or question related to the well-formedness of the learner’s utterance.</td>
<td>S: They lived in New York since 2010. T: You shouldn’t use past tense here, you should use present perfect.</td>
</tr>
<tr>
<td>Explicit correction</td>
<td>An utterance that provides the learner with the correct form while at the same time indicating an error was committed.</td>
<td>S: I have to make the laundry every week. T: No, you should not say make the laundry, you should say do the laundry.</td>
</tr>
</tbody>
</table>

For the language skills, the researchers counted the frequency of the teachers’ related practices one by one. For the reading, pre- (introducing the topic, skimming, scanning, activating schemata), during- (silent reading, giving students a purpose for reading), and post- (vocabulary study, discussing reading passages, answering questions, investigating grammatical structure) reading activities were examined. Regarding speaking, teachers’ pre- (introducing the topic, motivating students to think about the topic, teaching related vocabulary and grammatical structure) and during- (encouraging students to participate in the discussion) speaking activities were checked. Concerning listening, teachers’ pre-listening activities including activating learners’ schemata, motivating students, and introducing difficult vocabulary items and post-listening activities such as giving feedback to the students and answering the questions posed were noted. It is worth noting that writing was not examined since it is not the main focus of teachers in high schools. It is also addressed in advanced levels in private schools.

Once the researchers finalized the criteria for classroom observation, they proceeded with collecting audio-recorded data from teachers’ practices in three contexts. The researchers did not use video recording since it was too obtrusive. Three hours from three sessions of each teacher’s class (1 hour per session) were recorded. For PPT group, only their practices in high school were observed and recorded since those practices were the main concern of this study.

The recordings were done either by the teachers themselves or by one of the researchers via cell phone or MP3 recorder. Efforts were made to minimize the possible disruptive effects of the recording on classroom interactions and conduct. Moreover, one
of the researchers attended five sessions from each context to collect field notes on the on-going classroom contexts and teachers’ practices.

After collecting the data, the researchers enumerated the teachers’ practices in terms of frequency and duration depending on the nature of the observation categories. To establish consistency in the analyses of the observed teachers’ practices and capture the main phase of each session, only 30 minutes of each session was analysed and 15 minutes from the beginning and 15 closing minutes of each session were excluded from the analysis. Cohen’s Kappa coefficient was conducted to measure the inter-coder reliability which was 0.81.

One-Way ANOVA and Kruskal-Wallis test were employed to investigate the differences in practices of PSTs, PLITs, and PPTs in terms of duration and frequency, respectively. To account for the discrepancy between the practices of PSTs and those of PPTs in high school, Mann-Whitney U was used through SPSS, version 17.

### Results

This study was conducted to investigate the duration or frequency of Iranian EFL teachers’ practices in two main contexts of high school vs. private language institutes in terms of group/pair work activities, corrective feedback types, teacher talking time (TTT), questioning types, L1 use, and the coverage of language skill activities.

First, the teachers’ relevant practices are reported in terms of their duration. Table 3 shows the means and the standard deviations of PSTs, PLITs, and PPTs’ group/pair work activities, first language use, and TTT in terms of their duration.

<table>
<thead>
<tr>
<th>Variables</th>
<th>PST</th>
<th>PLIT</th>
<th>PPT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>P/G</td>
<td>20</td>
<td>2.35</td>
<td>1.15</td>
</tr>
<tr>
<td>FLT</td>
<td>20</td>
<td>19.15</td>
<td>3.36</td>
</tr>
<tr>
<td>TTT</td>
<td>20</td>
<td>22.25</td>
<td>3.09</td>
</tr>
</tbody>
</table>

Note. P/G: Pair/Group work, FLU: First Language Use, TTT: Teacher Talking Time

As Table 4 shows, the results of one-way ANOVA indicate that there was a significant difference among the three groups of teachers as far as the duration of group/pair work activities, first language use, and TTT were concerned (p<0.001). Then, Scheffé post hoc test was used to pinpoint the location of the difference (see Table 5).

<table>
<thead>
<tr>
<th>Variables</th>
<th>df</th>
<th>Sum of square</th>
<th>Mean square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>P/G work</td>
<td>2</td>
<td>108.03</td>
<td>54.01</td>
<td>20.03*</td>
</tr>
<tr>
<td></td>
<td>57</td>
<td>153.70</td>
<td>2.69</td>
<td></td>
</tr>
</tbody>
</table>

Sequel to Table 4 see on the next page.
Sequel to Table 4.

<table>
<thead>
<tr>
<th></th>
<th>Between group</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLU</td>
<td></td>
<td>2</td>
<td>2192.23</td>
<td>1096.11</td>
<td>180*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within group</td>
<td>57</td>
<td>347.10</td>
<td>6.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TTT</td>
<td></td>
<td>2</td>
<td>354.03</td>
<td>177.01</td>
<td>26.40*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Within group</td>
<td>57</td>
<td>382.15</td>
<td>6.70</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. P/G: Pair/Group Work, FLU: First Language Use, TTT: Teacher Talking Time

* sig<0.001

Table 5

Scheffé Post Hoc Test of Multiple Comparisons on Allocated Times of Pair/Group Work, First Language Use, and Teacher Talking Time

<table>
<thead>
<tr>
<th>Variables</th>
<th>PST</th>
<th>PLIT</th>
<th>Mean difference</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>P/G work</td>
<td>PST</td>
<td>PLIT</td>
<td>-3.20*</td>
<td>.51</td>
</tr>
<tr>
<td></td>
<td>PST</td>
<td>PPT</td>
<td>-9.5</td>
<td>.51</td>
</tr>
<tr>
<td></td>
<td>PLIT</td>
<td>PPT</td>
<td>2.25*</td>
<td>.51</td>
</tr>
<tr>
<td>FLU</td>
<td>PST</td>
<td>PLIT</td>
<td>14.55*</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td>PST</td>
<td>PPT</td>
<td>4.90*</td>
<td>.78</td>
</tr>
<tr>
<td></td>
<td>PLIT</td>
<td>PPT</td>
<td>-9.65*</td>
<td>.78</td>
</tr>
<tr>
<td>TTT</td>
<td>PST</td>
<td>PLIT</td>
<td>5.95*</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>PST</td>
<td>PPT</td>
<td>2.95**</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>PLIT</td>
<td>PPT</td>
<td>-3**</td>
<td>.81</td>
</tr>
</tbody>
</table>

Note. P/G: Pair/Group work, FLU: First Language Use, TTT: Teacher Talking Time

* sig<0.001  ** sig<0.01

Based on the findings, PLITs had a higher mean time than both high school and public-private school teachers regarding the duration of group/pair work activities. Concerning L1 use and TTT, high school teachers had a higher mean than their public-private counterparts. Both groups of teachers in high school switched to L1 and held the floor much longer than their colleagues in private language institutes. It should be noted that the teachers in high school classes most often relied on L1 in providing different types of corrective feedback and explaining grammatical structures. This was captured and reported in the proportion of their overall L1 use in this study. As it is clear from Table 5, there was not a significant difference between PSTs and PPTs in the duration of the pair/group work activities.

To examine the practices of PSTs, PLITs, and PPTs in terms of the frequency of using pair-group work, questioning, corrective feedback types and pre, during and post language skill activities, the researchers ran the normality test of Kolmogorov-Smirnov and found the distribution of scores far from normal (sig<0.05). Therefore, Kruskal-Wallis test was used. The findings demonstrated a significant difference among these teachers in all the investigated variables as shown in Table 6.
Table 6
*Kruskal-Wallis Test of the Teachers’ Practices in Terms of Key Practice Elements among Public School Teachers, Private Language Institute Teachers and Public-Private Teachers*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>PST</th>
<th>PLIT</th>
<th>PPT</th>
<th>Mean rank</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>P/G work</td>
<td>20</td>
<td>19.05</td>
<td>19.21*</td>
<td></td>
<td>19.21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>42.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>29.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questioning</td>
<td>20</td>
<td>29.58</td>
<td></td>
<td></td>
<td>15.82</td>
<td></td>
</tr>
<tr>
<td>Display</td>
<td>20</td>
<td>41.90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>20.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Referential</td>
<td>20</td>
<td>11.12</td>
<td></td>
<td></td>
<td>51.06</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>50.50</td>
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<td></td>
<td>20</td>
<td>29.88</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>20</td>
<td>15.90</td>
<td></td>
<td></td>
<td>21.78</td>
<td></td>
</tr>
<tr>
<td>RFC</td>
<td>20</td>
<td>38.92</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>20</td>
<td>36.68</td>
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<td>CC</td>
<td>20</td>
<td>25.40</td>
<td></td>
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<td>13.35</td>
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</tr>
<tr>
<td></td>
<td>20</td>
<td>24.18</td>
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*Sequel to Table 6 see on the next page.
Sequel to Table 6.

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Note. P/G: Pair/Group Work, RFC: Request for Clarification, CC: Confirmation Check, EC: Explicit Correction

* sig<0.001

Since it was not possible to run the post hoc test to check the location of difference in Kruskal-Wallis test and the researchers also wanted to see if the practices of PPTs in high school had any significant difference with the practices of their counterparts who taught in high school only, Mann-Whitney U test was conducted. As demonstrated in Table 6, there was a significant difference between them in all the variables except the variables of repetition and explicit correction. Since listening practices are completely ignored in high schools, they were left blank.

Table 7

Mann-Whitney U Test for Comparing Key Practice Elements Between High School Classes of Public School Teachers and Public-Private Teachers

<table>
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<th>Variable</th>
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Sequel to Table 7 see on the next page.
An Exploration of Teaching Practices of Private, Public, and Public-Private EFL...

Sequel to Table 7.

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Note. P/G: Pair/Group Work, RFC: Request For Clarification, CC: Confirmation Check, EC: Explicit Correction

* sig<0.001  ** sig<0.01  *** sig<0.05

Discussion

Having observed and recorded the teaching practices of three groups of teachers including pair/group work, TTT, L1 use, questioning, corrective feedback, and presentation of language skills of 60 PSTs, PLIT’s, and PPTs, the researchers found that there were significant differences among them in their practices. It was also discovered that the practices of PPTs in high school were statistically different from PSTs in all the variables with the exclusion of repetition, explicit correction, and the duration of pair/group work activities.

The study revealed that PLIT’s employed pair/group work activities more than their counterparts. It means that they had more communicative classes by maximizing the amount of student talking time, which allowed their learners to be more autonomous (Harmer, 2006). This finding is in line with that of McKinnon, Barza, and Moussa-Intary (2013). Moreover, it was shown that PPTs used L1 less frequently than their colleagues in high schools. Such a result corroborates de la Campa and Nassaji’s (2009) claim that the teaching context might have a vital role on the use of L1 in L2 classrooms. The high rate of L1 use in public schools could be explained by the lack of placement testing, large classes, state-produced textbooks with little consideration of text difficulty and readability and the lenient or non-existent corporate policy on the overuse of L1 among some other factors.

The teachers in private schools used questioning technique far more often than high school teachers. It can be a sign of more interactive classes of PLIT in which both the teacher and learners are highly involved and students have opportunities to produce language (Kinsella, 1991; Tan, 2007). In accordance with Robert and Zody (1989),
more questioning means more learning by giving students more practice and feedback. In addition, like in other variables, PLITs outperformed their counterparts in using corrective feedback (CF). This also supports their notion that their classes are more communicative in nature and correspond to practices necessary for sustainable education. Long (1991) underlined the importance of focus on form in communicative classes and he considered CF being an important tool at the teachers’ disposal to help students notice correct forms.

Overall, the more effective performance and teaching of PLITs may be due to the following reasons: firstly, in public schools, there is no customized pre- and in-service teacher training program and if there is any, teachers most often do not participate in it. In this context, teachers enjoy high job security once employed and they are not afraid of losing their job. Similarly, the prospects for promotion seem less promising. Taken together, there is little incentive and willingness on the part of these teachers to transform themselves professionally. On the other hand, in private language schools, teachers have to actively participate in pre-/in-service teacher training courses on a regular basis; they constantly receive professional development support and scaffold throughout their teaching experience. Their better performance and higher achievement rates in their classes are the key determiners of their promotion and career growth.

Numerous studies have shown that professional development, which is continuous, communicative, and reflective, may have a great effect on teachers’ practices (Darling-Hammond & McLaughlin, 1996; Penlington, 2008). Based on Sparks and Loucks-Horsley (1989), professional development can be related to teachers’ knowledge, skills, and temperament in the classroom.

Secondly, unlike high school books, which follow audio-lingual and grammar translation methods and are highly teacher centred (Babaei, 2014), textbooks used in private language institutes (e.g., American English File, Interchange, Top Notch, etc.) have been written based on communicative approach and task based language learning. Thus, teachers feel at ease in running their classes communicatively through these communicatively-friendly materials. In this respect, PPTs can supposedly take some lessons from teaching these books and consulting their teachers’ guide books, which can, in turn, have positive effects on their practices in high schools. The positive across-teaching-context effects of these materials seem plausible and are backed up by the dynamic multidimensional model of school organization and student learning proposed by Gamron, Secada, and Marret (2000). This model indicates that teaching practices are influenced by professional development and organizational resources including material, human, and social resources.

Thirdly, school climate and composition may be a factor in teachers’ teaching practices. Dronker and Robert (2008) claim that a better social composition helps teachers to excel in the conditions of learning and teaching because of a “lower level of non-academic disturbances” (p. 545) and it leads to the higher quality of private schools over public ones. Hannaway (1991) and Jimenez and Lockhead (1995) attribute the superiority of private schools to their greater autonomy, which helps them meet the needs of teachers, learners, and parents far better. Furthermore, Amjad and MacLeod (2014) have linked the poor performance of public schools to their lower quality. Rahimi and Nabilou (2010) report that there are, at least, five major factors behind the weak quality of teaching English as a foreign language in public school, and teacher-related factors are among them. Other elements are related to learners (e.g., heterogeneous
An Exploration of Teaching Practices of Private, Public, and Public-Private EFL Classes

classes, demotivation), class sectors (e.g., big classes, the lack of facilities), syllabuses (e.g., the degree of difficulty, too much attention to grammar and vocabulary instead of communication), and planning (e.g., not enough hours for English instruction).

Another noteworthy finding of the present study was that PPTs in high schools had a better and presumably more sustainable performance than their PST peers. Their tendency to employ more communicative and sustainable features of ELT could be partially attributed to the regularly run pre- and in-service training programs and supervisory help they received. Private language schools enjoy robust and regular pre-/in-service teacher training programs most often accompanied by classroom observation, constructive feedback, and supervision. These measures update the skills and knowledge of practicing teachers and provide professional development for these teachers and thereby promote sustainable development of teachers in line with the educational reform policies endorsed by UNESCO (2005). Besong and Holland (2015) have also corroborated that education is vital in developing the ideal of sustainability. Hence, thanks to such training and the follow-up supervisory support, PPTs can successfully and effectively transfer some of this training to other contexts they teach in as is the case in this study. This positive transfer of one’s learned professional knowledge is also echoed by Darling-Hammond (2006), Fenwick and Cooper (2013), and Fenwick, Endicott, Quinn & Humphrey (2014). Redman (2013) pointed out that in order to achieve sustainability teachers need enthusiasm and internal and external support some of which is provided for PPTs through their part-time employment in private language institutes. Compared to their PST counterparts, PPTs can adhere better to the indices of communicative language teaching even in their high school classes in spite of the endemic constraints and deficiencies governing teaching in public schools and can, therefore, act as the best agents for institutionalizing sustainable factors compatible with modern language teaching principles in high school classes in Iran and similar contexts elsewhere.

Finally, this study has found out that PPTs and PSTs do not differ significantly in the rates of repetition, explicit correction, and duration of pair/group work activities in the observed classes. The lack of discrepancy on these elements may not necessarily be related to teachers’ professional performance and behaviour but it derives from contextual barriers. Nishino (2008) states that some factors such as time constraints, wash back effects of tests, insufficiency of materials, class size, classroom management difficulties, demotivated learners, and weaknesses in textbooks prevent high school teachers from effective teaching; under such circumstances, their role is limited and they have to follow prescribed curriculums. Philips and Borg (2009) point out that such contextual factors as a prescribed curriculum, time constraints, and high-stake examinations mediate the extent to which teachers cannot act in accordance with their beliefs. We tend to believe that some of these factors are well at play in the case of these Iranian public school teachers and act as hindering blocks even to PPTs, who are accustomed to frequent use of pair-group work activities and optimal rate of repetition and explicit CF.

Conclusion

This study probed into the practices of PSTs, PLITs, and PPTs and, in particular, the possible differences between the practices of PPTs in high schools with the practices of their PST counterparts, who taught in high school only. The findings indicated that there were significant differences in their teaching practices. PLITs’ classes were found
to be considerably more communicative in nature with a good degree of meaningful interaction and student talking time, i.e. their teaching context promoted and valued the elements of sustainable education and professional development. These teachers employed more pair/group work activities, asked more display and referential questions, and used a wider range of corrective feedback options. On the other hand, they used L1 much less frequently and more purposefully in their classes. A similar trend was observed in the high school English classes of PPTs, although to a lesser extent. The PPTs, in this study, were found to successfully apply some of their methodologies in private language schools to their high school classes, thereby making these classes more interactive and student-centred than those of PSTs. The findings of this study can be helpful in better appreciation of the contextual factors governing language teaching in high schools and private language schools and by those teachers who crisscross between the two sectors. This study also elucidates diverse or similar practices of two types of teachers in the same high school contexts.

It appears that distinct and relatively more sustainable practices of PPTs in high school English classes need more recognition and acknowledgement on the part of educational officials and administrators in countries like Iran. School officials in high schools are encouraged to capitalize on these teachers’ practices and this can enhance educational sustainability in the long run. PSTs are advised to carry out frequent peer observations of the teaching practices of their PPT colleagues in both high schools and private language schools and receive encouragement and incentives to follow. This study also underscores the instrumental role of professional development and supervisory assistance to teachers in transforming the practices of public school teachers. In this regard, a combination of mentor program and consistent professional development, as suggested by McKinnon, et al. (2013), can accelerate this transition.

The findings of this study should be interpreted with caution as it involved only 20 teachers’ practices per group. Another limitation was the scope of the teachers’ practices investigated. This study explored six major elements of the teachers’ practices conducive to sustainable and communicative teaching. Future studies can expand this by examining some other important elements such as teaching materials, assignments, class tasks, teacher instructions, teacher burn-out, and etc. Moreover, by exploring teachers’ cognition through think-aloud protocols could elucidate the rationale behind their similar or diverse practices and provide more clues on the contextual factors shaping their practices; it is especially relevant in the case of PPTs. A comparison of the same PPTs’ practices in high schools and private language schools and pondering over such practices appear to be a promising line of inquiry.

References


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The Relationship between Mathematics Teachers’ Teaching Approaches and 9th Grade Students’ Mathematics Self

Liene Briede
Daugavpils University, Latvia

Abstract
The aim of the study is to investigate the relationship between the teaching approach adopted by mathematics teachers and their 9th grade students’ mathematical self. The study searched for the answers on three research questions, namely, about 1) the approaches prevailing in mathematics teachers’ beliefs about effective teaching and self-reports about their classroom practices, 2) the qualitative and quantitative features of students’ mathematical self and 3) the relationships between the teaching approaches supported by mathematics teachers, the indicators of their 9th grade students’ mathematical self, teachers’ socio-demographic indicators, and students’ socio-demographic indicators. The outcomes of the study show that because of the complex structure of the phenomena, it is difficult to classify mathematics teachers’ beliefs on teaching and their self-reported practice into theoretically predefined groups though the use of constructivism in a lesson has a more positive influence on students’ mathematical self than mere support of the constructivist beliefs.

Keywords: teaching approach, mathematics teaching, students’ mathematical self, constructivism

Introduction
In the second decade of the 21st century, education in Latvia as well as in the world starts orienting towards principles of sustainable development. It is a reorientation towards other values, choosing quality instead of quantity, accepting and respecting diversity of people and their views, evaluating not only results, but also the processes during which these results have been achieved. Education is the sphere that is aimed at stimulating an individual’s understanding of values and providing necessary knowledge and competencies. Education for sustainable development does not concentrate on providing knowledge, but rather on the search for possible solutions to everyday life situations which should definitely be reflected in curricula and teaching approaches. As education is changing, so is a teacher’s and a student’s role in it (UNECE, 2011).

Processes connected with education in scientific literature are characterised as complex, changing, non-linear, multidimensional, which is why education cannot be
viewed narrowly, merely within a context of school, apart from other processes in society because they are interconnected (Kuhn, 2008; Morrison, 2008). According to this view on education, learning is a process of development of an individual, a social group and a society, their mutual cooperation and constructive action, emphasising mutual interconnection and a view on an individual’s mind as a complex adaptive system (Jess, Atencio & Thorburn, 2008; Morrison, 2008). Structural elements of the complex adaptive system intercorrelate in self-organised manner and the overall state of the system cannot be determined by the sum of its elements (Norman, 2011). These systems are based on the following principles: 1) system behaviour is unpredictable at the detail level, 2) small changes can result in major changes in system behaviour, 3) it is difficult to define the borders of the system (Holland, 1996; Norman, 2011; Waldrop, 1992). To design a conceptual framework of a teaching and learning process rooted in the holistic approach to education, it is vital to evaluate not only the structure of teaching and learning, but also the procedural aspects such as learner’s interaction with the teacher and the content of learning (Badjanova & Iliško, 2015). The above mentioned principles should be taken into consideration implementing new approaches in education.

Implementation of new teaching approaches is a complex and quite unpredictable process. Hastily implemented reforms often cause confusion both in teachers, who are used to working in a definite way and have considered it as right and effective, and students, for whom the newly introduced things in teaching/learning process are unfamiliar and, frequently, they are used unprofessionally. Attention should be paid to the influence of social demographic indicators on mathematics teaching/learning process as well because several international researches reveal significant differences in such indicators as achievements and attitude towards mathematics when comparing them according to socio-demographic indicators (Ma & Kishor, 1997; Mubeen, Saeed & Arif, 2013). A more complete study of the problem from a teacher’s point of view as well as exploring students’ emotions, attitudes and perception would provide a deeper understanding about education process and help to both plan and implement a teaching/learning process that stimulates better results.

The mission of a teacher is its orientation to sustainability. Current frame of Anthropocene is un-sustainable that narrows and threatens the existence of mission driven pedagogy. The exclusion of mission driven pedagogy fosters poisoning of the society. Within the frames of Anthropocene, we need to renew pedagogy and the call for a teacher is to search for sustainability (Salite, 2015).

The following research questions were raised in the research process: (1) What kind of teaching approaches do prevail in 7th – 9th grade mathematics teachers’ beliefs about effective teaching and self-report about their classroom practices? (2) What are qualitative and quantitative expressions of the indicators of the 9th grade students’ mathematical self? (3) What kind of relationships exists among four aspects of the research: a) teaching approaches supported by mathematics teachers in their beliefs and actions in the classroom, b) their 9th grade students’ mathematical self indicators, c) teachers’ socio-demographic indicators, and d) 9th grade students’ socio-demographic indicators?
Theoretical Framework of the Study

Variety of teaching approaches in the acquisition of mathematics

Teaching approach is defined as a dynamic correlation between the teacher’s actions, intentions and beliefs (Pratt, 1992). This implies that the teaching approach includes the actual teachers’ actions in the classroom which are based on their beliefs and intentions. The teaching approach chosen by a teacher has a significant influence on the actual learning process, students’ academic performance, knowledge and skills, their attitudes towards learning and the subject, the learners’ beliefs about their skills as well as feelings and emotions in relation to the subject (Wentzel, 2002). Teaching approaches are also classified as student-centered, teacher-centered and content-centered (Hancock, Bray & Nason, 2003). According to Huit (2006), teaching approaches can be divided into behavioural, cognitive, humanistic and constructivist. In the current research, the division into the traditional or a teacher-centered approach and the constructivist or a student-centered approach is used (Lord, 1999).

Constructivist ideas cannot be regarded as a modern innovation since they have been evolving in pedagogy since the 17th century (Fox, 2001). According to the objectivists’ beliefs, on which the traditional teaching approach is based, knowledge reflects the real world, is fixed and is not associated with an individual (Jonassen, 1991). The constructivists’ view of knowledge is the opposite: the human brain does not reflect the outside world but constructs an individual’s experience and life representation through cognitive and emotional processes in the social context as a subjective idea and conceptions. According to the constructive teaching approach, the students are in the centre of teaching/learning process with all their preferences and needs, including emotional well-being, whereas the traditional teaching approach focuses on the teacher and the content while the affective factors are moved to the background. Therefore, it is assumed that the constructive teaching approach is likely to exert a more positive influence on students’ emotional well-being during mathematics lessons as well as their attitudes towards mathematics and mathematicians.

Teachers’ beliefs about mathematics teaching and their connection with action in the classroom

Beliefs help people to understand the meaning of life, the world and themselves. They influence the way how an individual perceives new information – adopting or rejecting it (Borg, 2001; Pajares, 1992). Since the beliefs are a broad concept, in terms of teachers’ beliefs about mathematics teaching, they are classified into the definite groups:

1. beliefs on the nature of mathematics;
2. beliefs on the nature of mathematics teaching and learning;
3. beliefs on the ideal mathematics teaching/learning process (Ernest, 1989).

Theoretical overview of students’ mathematical self

Mathematical self is a construct, which by its nature is between such constructs, previously mentioned and defined in scientific literature, as “mathematical identity” and “mathematical self-conception”. The mathematical self tries to integrate two notions
which are characteristics of mathematical self-conception – assessment of one’s understanding of mathematics and becoming aware of one’s achievement in the subject – with the attitude towards one’s achievement in mathematics, the subject in general and its specialists, which, in its turn, is rooted in social constructivism and culture.

The author of the current research includes in the concept of students’ mathematical self both quantitative indicators (mathematical self-conception, mathematical self-efficacy and mathematical anxiety) and qualitative indicators (perception of mathematics, mathematicians, a mathematics teacher and attitude towards them), which constitute a complementary view of mathematical self. All these concepts can be united into a single construct because they all characterize a student’s individual affective factors associated with mathematics.

For a student with a developed mathematical self, it is typical to have: 1) developed positive attitude towards mathematics, mathematicians and a mathematics teacher; 2) developed positive perception of mathematics, mathematicians and a mathematics teacher; 3) low mathematical anxiety, high self-efficacy and positive mathematical self-conception. Characteristics of a student with an undeveloped mathematical self are as follows: 1) positive attitude towards mathematics, mathematicians and a mathematics teacher is not developed; 2) positive perception of mathematics, mathematicians and a mathematics teacher is not developed; 3) high mathematical anxiety, low self-efficacy and negative mathematical self-conception. It is important to emphasize, however, that there is a range of mathematical self, not just the two opposite positions of self. In the current research, the opposing positions were marked as developed and undeveloped mathematical self in order to conduct the quantitative study and statistical analysis of data.

Further, the previously mentioned indicators of mathematical self will be defined.

Mathematical self-conception is students’ perception of or opinion about their own mathematical abilities, confidence in their ability to learn mathematics (Reyes, 1984). According to the social comparison theory, the mathematical self-conception is developed based on external references (the direct comparison of one’s achievements with the achievements of other students in the immediate environment) and internal references (the direct comparison of one’s achievements in a particular subject with the achievements in other school subjects) (Marsh & Hau, 2003).

Self-efficacy is an evaluation of one’s competence in doing something in a certain context (Pajares & Miller, 1994). Self-efficacy is considered to be a significant factor influencing achievement in mathematics. Researchers claim that it is more important than the overall ability of the human mind, gender, mathematics learning experience, mathematical anxiety, mathematical self-conception and beliefs about the usefulness of mathematics (Pajares & Miller, 1994; Stevens, Olivarez & Hamman, 2006). Students with higher mathematical self-efficacy are able to work longer on complex mathematical problems and have fewer mistakes in calculation (Collins, 1982; Hoffman & Schraw, 2009).

Mathematical anxiety is a multidimensional psychological construct that involves complex factors such as the feeling of pressure, inappropriate behaviour that interferes with working with numbers and solving mathematical problems in different everyday situations and in academic contexts (Kazelskis, 1998).

Perception is the process by which information, obtained by the senses, is organized and interpreted to create a meaningful experience (Lindsay & Norman, 1977). Students’
perception of mathematics and mathematicians is influenced by a learner’s internal factors (beliefs, attitude, previous knowledge etc.) and the context in which the perception takes place – teaching/learning methods and content as well as teachers’ actions.

Within the current research, attitude towards mathematics is defined as like or dislike feelings towards mathematics, tendency to engage in or avoid mathematical activities, a belief that one is or is not good at mathematics as well as views on usefulness of mathematics (Kislenko, Grevholm & Lepik, 2009).

Methodological Framework and Participants

In the present study, the mixed methods approach is used which implies integrating quantitative and qualitative research methodology.

Quantitative data collection methods:

1. The survey on mathematics teachers’ beliefs (Lepik & Pipere, 2011) for 7th–9th grade mathematics teachers which has been developed in order to compare Baltic and Nordic mathematics teachers’ beliefs about mathematics education. In the current paper, the author has used the parts of the survey related to teachers’ beliefs on effective teaching, teachers’ beliefs on effective mathematics teaching and learning and teachers’ self-reports about their own classroom practices.
2. The survey on non-cognitive skills for 9th grade students (Morony, Kleitman, Lee & Stankov, 2013). In the current research the author uses only the parts of the survey which contain statements about mathematical self-efficacy, mathematical self-conception and anxiety.

Qualitative data collection methods:

1. Visual research method – 9th grade students’ drawings (mathematicians, mathematics);
2. Mathematics teachers’ phenomenological interviews;
3. 9th grade students’ phenomenological interviews;
4. Projective verbal methods:
   a) unfinished sentences method for 9th grade students about mathematics, mathematicians and mathematics teachers;
   b) mathematics teachers’ metaphors about a teacher’s profession.

The phenomenological interviews lasted 19 to 38 minutes. All the interviews were fully transcribed. The phenomenological analysis consisted of the following steps (Hycner, 1999): 1) bracketing and reduction; 2) delineating units of meaning; 3) clustering of units of meanings to form themes; 4) summarising each interview, validating; 5) extracting general and unique themes from all the interviews and making a composite summary. The aim within the analysis was the reconstruction of the inner world of experience of the subject. Each individual has his/her own way of experiencing temporality, spatiality, materiality but each of these coordinates must be understood in relation to the others and to the total inner “world” (Hycner, 1999). (See Appendix 1 for interview questions).
Research participants

The total number of participants in empirical research – 3478;

- In the survey for 7th – 9th grade mathematics teachers 390 teachers have taken part; simultaneously, metaphors from 353 respondents have been gathered and four of these teachers have participated in phenomenological interviews.
- In the survey for 9th grade students a total of 3083 students have taken part; the unfinished sentences method has been also included in the survey and drawings from 61 student of the total number of respondents have been gathered.
- In phenomenological interviews five 9th grade students have participated.

The participation in the research was voluntary and participants represented schools from provincial towns and country as well as towns; schools with general education and minority education programs. Mathematics teachers represented all five regions of Latvia and all age groups of teachers, but the dominant age group is that of 40 to 49 years. Approximately a half of the teachers had Bachelor degree and a half – Masters degree. There were a bigger number of teachers coming from provincial towns and country than those who live in towns and capital Riga. Approximately 25% of all teachers participating in this research worked in schools with minority education program. Most of the 9th grade students who took part in the research came from schools with general education program, the number of boys and girls were almost evenly distributed as well as the number of students who come from cities and towns and those from provincial towns and country. Participants of the phenomenological interviews were chosen to represent all socio-demographic groups.

Findings

Quantitative analysis of relationship between 9th grade students’ mathematical self-efficacy, self-conception, anxiety and mathematics teachers’ teaching approaches

At first, the author has focused on three indicators of 9th grade students’ mathematical self – mathematical self-efficacy, self-conception, anxiety – and 7th–9th grade mathematics teachers’ beliefs about teaching approaches and teachers’ self-reports about their own classroom practices. All these indicators were studied in relation to the socio-demographic variables. In the process of the analysis, teachers’ beliefs and self-reports about their own teaching approaches were studied in more detail, differentiating factors which constitute the approaches – teachers’ beliefs about effective teaching, beliefs about effective mathematics teaching and the self-reports about their own classroom practices – and classifying them as corresponding to the constructivist or the traditional teaching approach.

Comparison of interest rate of standardised factors, central tendency, the average ranking of students’ mathematical self-efficacy, self-conception and anxiety in different socio-demographic groups

Figure 1 shows mean values of mathematical anxiety, self-efficacy and self-conception for urban and rural students.
Figure 1. Mean values of mathematical anxiety, self-efficacy and self-conception for urban and rural students

There are statistically significant differences in all three factors between urban and rural students. According to quantitative indicators, mathematical self of rural students is more developed (lower mathematical anxiety, higher mathematical self-efficacy and more positive mathematical self-conception) (T-test for interdependent samples, $p<0.05$).

Figure 2 shows mean values of mathematical anxiety, self-efficacy and self-conception in general and minority education programs.

Figure 2. Mean values of mathematical anxiety, self-efficacy and self-conception in general and minority education programs

Statistically significant differences have been found only in mathematical self-efficacy (T-test for independent sample, $p<0.001$). Students who study in education programs for minorities have higher mathematical self-efficacy.

Figure 3 shows mean values of mathematical anxiety, self-efficacy and self-conception for boys and girls.

All three factors depend on respondents’ gender (T-test for independent samples, $p<0.05$). Girls have higher mathematical anxiety and lower mathematical self-efficacy and self-conception than boys. The most significant differences were found in mathematical self-efficacy.
Analysis of correlation between mathematics teachers’ teaching approach and students’ mathematical self-efficacy, self-conception and anxiety

The students were divided into two clusters (two-stage cluster analysis):

Cluster 1 (51% of all the respondents, \( n=1482 \)) – developed indicators of mathematical self: mathematical self-efficacy and self-conception higher than the mean value, mathematical anxiety lower than the mean value.

Cluster 2 (49% of all the respondents, \( n=1423 \)) – undeveloped indicators of mathematical self: mathematical self-efficacy and self-conception lower than the mean value, mathematical anxiety higher than the mean value (Figure 4).

The teachers were divided into three clusters (two-stage cluster analysis):

Cluster 1 (\( n=82 \) (39.2% of all the teachers)) – teachers who are in favour of the constructivist teaching approach (beliefs supporting constructivist teaching approach about effective teaching and effective mathematics teaching higher than mean value, the teachers’ self-reports about their own classroom practices correspond to constructivist teaching approach, support using constructivist teaching approach in the classroom).

Cluster 2 (\( n=76 \) (36.4% of all the teachers)) – teachers who equally support the constructivist and the traditional teaching approaches (the teachers’ beliefs about effective teaching correspond more to principles of constructivism but they support the traditional teaching approach as well, in their beliefs about effective mathematics teaching/learning,
they equally support the traditional and the constructivist teaching approach and, in their classroom practices, they slightly prefer the traditional teaching approach).

Cluster 3 (n=51 (24.4% of all the teachers) – teachers who support the traditional teaching approach (the teachers’ beliefs about effective teaching and effective mathematics teaching/learning higher than mean value, classroom practices correspond to traditional teaching approach, support using the traditional teaching approach in the classroom).

Further, the author has studied the distribution of students with developed and undeveloped indicators of mathematical self in the three identified clusters of teachers. The teachers who support the constructivist teaching approach have been marked with “K”, the teachers who support both the constructivist and the traditional teaching approach – with “T+K” and the teachers who support the traditional teaching approach – with “T” (Figure 5).

Figure 5. Comparison of students’ mathematical self-efficacy, self-conception and anxiety in relation to teaching approach chosen by a teacher

As it can be seen in Figure 5, there is no strong correlation between the teaching approach chosen by a teacher and the studied indicators of students’ mathematical self, ($\chi^2$=3.31, p<0.191). However, the indicators for students whose teachers prefer constructivist teaching approach are slightly more developed.

The research results show the difference between the impact of teachers’ beliefs and self-report about their own classroom practices on students’ indicators of mathematical self: self-efficacy, self-concept and anxiety. It has been found out that teachers’ constructivist beliefs do not have a positive impact on the indicators of students’ mathematical self, while the use of constructivism in the classroom influence these indicators positively. The analysis of the impact of teachers’ socio-demographic parameters shows that there are several correlations between these parameters, the teaching approach and the indicators of students’ mathematical self. It can be concluded that students’ mathematical self-efficacy, self-conception and anxiety depend not only on the teaching approach used by a teacher, but rather the interaction of several factors, which include students’ gender characteristics, place of living, education program and a number of factors specific to the teachers as experience, education and age.
Qualitative analysis of 9th grade students’ perception of and attitude towards mathematics, mathematicians and a mathematics teacher

Latvian 9th grade students’ attitude towards mathematics, mathematicians and a mathematics teacher has been studied using the unfinished sentences method. Students’ answers about mathematics can be divided into three most common categories:

1) an important school subject \( (n=477) \) “Mathematics is very important for me”;
2) a favourite school subject \( (n=474) \) “Mathematics is one of my favourite subjects because I like calculations”;
3) a school subject/lesson \( (n=280) \) “Mathematics is just a class to sit through at school”.

Mathematics as a school subject associates for many students with positive emotions \( (n=873; 41\%) \). Some of the students with positive emotional attitude towards mathematics have pointed out that they are good at mathematics and the subject is easy, for example, “Mathematics is one of my favourite subjects and I think I’m good at it”. A neutral view on mathematics has been identified in 788 students’ answers (37\%). In these answers mathematics is characterized just as a school subject or as a normal or an important school subject: “Mathematics is a school subject”. Negative emotions have been identified in 469 students’ answers (22\%). Mathematics is difficult, according to these students, which is the cause for dislike. The subject seems unfamiliar, boring and fear-provoking. Despite the fact that a pronounced majority of the students consider mathematics important, there are some students who believe that the subject is insignificant, which is the cause of their indifference to it.

Three most frequently mentioned categories in students’ answers about mathematicians were the following:

1) Smart \( (n=1140) \): “Mathematicians are smart people who can find something new and interesting on our planet. Discover many secrets of the world”;
2) Good people \( (n=268) \): “Mathematicians are very good people”;
3) Very smart \( (n=186) \): “Very smart people because I think that mathematics is a very difficult subject. Not everybody can become a mathematician”.

The majority of the students have neutral emotions \( (n=1657; 72\%) \). For these students a mathematician is just a person whose job is connected with mathematics, one who is good at it and has a developed logical thinking: “People who work with many different numbers and tasks every day”. A positive emotional attitude has been identified in 414 students’ responses: “Very unique personalities, who over centuries have discovered universal techniques to make our lives easier”. In this category, a mathematician has been mainly portrayed as a smart, respected, responsible, diligent person worth of admiration and indispensable in the society. A negative emotional attitude has been identified in 230 (10\%) responses. These students describe a mathematician as being different from other people because of the unusual appearance, character attributes or cognitive abilities: “[They] have invented stupid formulas to make our life more complicated. [They] hate children and think only about themselves and the stupid mathematics” or “People with their imaginary ideal world, in which only mathematics exists”.

Most of the students 79.68\% \( (n=1859) \) have a positive emotional attitude towards their mathematics teachers. In the description of a good mathematics teacher students mention personal characteristics, professional skills and appearance.
The analysis of students’ drawings shows that students’ vision of mathematics is mainly associated with: 1) numbers (87%), including mathematical operations: addition, subtraction, multiplication and division; 2) geometrical figures (80%) as circles, triangles, squares, etc.; 3) books (46%); 4) school supplies (37%): pens, pencils, rulers, erasers; 5) a board (34%); 6) furniture (27%): benches, tables; 8) people (15%). Many drawings contain several things from this list. The students involved in the study see a mathematician as 1) a lonely middle-aged man with glasses, dressed in a suit and working with numbers; 2) a glad middle-aged woman who is a mathematics teacher at school; 3) a thoughtful or an angry student who is forced to learn mathematics at school.

The results of students’ phenomenological interviews show that students prefer mathematics lessons which are organized according to the principles of the constructive teaching approach.

Qualitative analysis of Latvian 7th–9th grade mathematics teachers’ beliefs about teaching, their profession and self-reports about their own classroom practices

According to the 7th–9th grade mathematics teacher’s metaphor analysis, the teachers have a personal interest in their work, they consider the skills to teach the subject matter well having good knowledge of teaching methods and approaches as very important, and a significant role in the teaching/learning process is played by a student’s emotional well-being. All the previously mentioned characteristics indirectly indicate teachers’ support to the constructivist teaching approach, since introducing this approach in teaching/learning process requires knowledge and skills for organising effective teaching/learning process and establishing a positive emotional climate. The large number of hybrid metaphors proves the fact that teachers are aware of the multifaceted nature of their work and realise that the organization of a successful teaching/learning process requires different skills and knowledge from a teacher. The dominance of self-directed metaphors can imply that the teachers do not separate their role as a teacher from other social roles; they relate their work to themselves, as a person.

According to the mathematics teachers’ phenomenological interviews, teachers’ descriptions of an everyday and an ideal mathematics lesson largely coincide and tend to conform more to the constructivist teaching approach rather than the traditional teaching approach, which indicates that the interviewed teachers both prefer and try to use elements of the constructivist teaching approach in their everyday lessons.

The relationship between mathematics teachers’ teaching approaches and 9th grade students’ mathematical self – integration of qualitative and quantitative data

The quantitative data analysis has revealed that the constructivist teaching approach has a slightly more positive impact on the indicators of students’ mathematical self – self-efficacy, self-conception and anxiety – than the traditional teaching approach. The analysis of students’ qualitative data has shown that students prefer the constructivist teaching approach thus giving an indication of the positive effect of the constructivist teaching approach on students’ attitude towards mathematics as well as perception of mathematics and mathematicians.

Although the mathematics teaching/learning process is a complex process, influenced by several internal and external factors, the tendencies indicate a positive impact of
using the constructivist approach in mathematics teaching/learning process on development of quantitative and qualitative indicators of students’ mathematical self, taking into consideration that all these indicators correlate and are mutually related.

Conclusion

The findings from the study suggest the following conclusions. Firstly, teachers’ work at school is largely determined by their beliefs, which are based on an individual’s philosophical view on mathematics and mathematics teaching/learning process in correlation with such contextual factors as a teacher’s education, work experience, place of residence and educational program realised at school.

Secondly, an important role in mathematics teaching/learning process is played not only by students’ cognitive skills, but also a student’s mathematical self, which includes such qualitative indicators as students’ perception of mathematics, mathematicians and a mathematics teacher and attitude towards them as well as quantitative indicators such as mathematical self-efficacy, self-conception and anxiety. All the indicators of mathematical self are interrelated and characterise a student’s individual affective factors related to mathematics.

Thirdly, the use of constructivism in mathematics teaching/learning process contributes to establishing positive learning environment in the classroom with emphasis on cooperation and students’ active participation in the teaching/learning process and the development of their knowledge and skills, relating knowledge with the daily life necessities, the teacher’s role as an advisor and students’ emotional well-being in the classroom thereby positively influencing students’ mathematical self. This corresponds with principles of sustainable education, according to which the aim of education is to develop not only intellectual, but also emotional, social and spiritual potential, moving the focus from teaching specific facts to creation of an environment which would stimulate students’ creative and cognitive interaction with the world.

References


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Twenty First Century Education: Transformative Education for Sustainability and Responsible Citizenship

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“If you are planning ahead 1 year, plant a seed.
If you are planning ahead 10 years, plant a tree.
If you are planning ahead 100 years, educate the people.”
Hung Hsu, Chinese poet, 500 BC

Abstract
Many ministries of education focus on twenty-first century education but unless they are looking at this topic through a sustainability lens, they will be missing some of its most important elements. The usual emphasis on developing skills for employability in the current global economy begs the question whether the global economy is itself sustainable over the course of this century. According to the World Business Council on Sustainable Development (WBCSD) whose membership comprises 29 of the largest, most important companies on the planet, it is not. Continuing on the current development path would require approximately 2.3 planets earth to support existing levels of resource and energy use, and waste production, projected out for a global population which will reach 9 billion by 2050. And yet most discussions of 21st century education are premised on servicing, rather than transforming, the current global economy.
This paper explores the opportunities and benefits of connecting the discourse on twenty-first century education with Education for Sustainable Development (ESD) which seeks to prepare learners for the varied and interrelated environmental, social, and economic challenges they will meet as they confront a changing world. ESD emphasizes futures thinking and strategic planning that will enable learners to help create and flourish in a more sustainable economy. Conventional teaching models must also shift to a “transformative” style of education for the twenty-first century in order for humankind to learn how to live more sustainably on this planet.

Keywords: education for sustainable development (ESD), twenty-first century education, sustainable economy, transformative learning
Ministries of Education in Canada and around the world are abuzz with exciting conversations and significant policy commitments around twenty first century education. But unless they are looking at this topic through a sustainability lens, they will be missing some of its most important elements. This paper explores the opportunities and benefits of connecting the discourse on twenty first century education with Education for Sustainable Development (ESD) and developing an exciting new vision of 21st century education for sustainability and responsible citizenship.

Though it has intellectual roots in Ancient Greek and Chinese philosophy and in traditional ecological knowledge, ESD entered the global discourse on education through Agenda 21, the document signed by every nation in the world at the Rio Earth Summit in 1991 (Bell, 2009). The word education appears in each of the 40 chapters of *Agenda 21*, but it was given special treatment in chapter 36: “Promoting Education, Public Awareness, and Training.”

In keeping with the emphasis of the Rio Earth Summit (the official title of which was the “UN Conference on Environment and Development”) the initial definition of ESD in *Agenda 21* was rather narrow: it referred to the need to include attention to environment and development in education curricula. But *Agenda 21* also suggested broadening the focus of ESD (which has continued to evolve ever since) to look at social and cultural dimensions. This broader focus informed the “Eco-Ed” Conference held a few months after Rio in Toronto; and the World Conference on ESD held in 1997 in Thessaloniki Greece.

In 2004, the UN declared the Decade on ESD (2005–2014) recognizing that ESD “develops and strengthens the capacity of individuals, groups, communities, organizations, and countries to make judgments and choices in favor of sustainable development. It can promote a shift in people’s mindsets and, in so doing, enable them to make our world safer, healthier, and more prosperous, thereby improving the quality of life.” (Council of Ministers of Education Canada, 2010).

Education for Sustainable Development (ESD) is therefore in essence, and by definition, education for the 21st century. According to the United Nations Economic Commission for Europe (the UN regional grouping of 54 countries that includes Canada) ESD “promotes sustainable thinking and acting. It enables children and adults to make decisions and at the same time understand how those decisions affect future generations and the life of others.” Similarly, the mission of Learning for a Sustainable Future (LSF), a national NGO established in 1991 by the National Round Table on the Environment and the Economy, is to inspire a new generation of responsible citizens “by promoting, through education, the knowledge, skills, values, perspectives and practices essential to a sustainable future.”

And yet, a separate discourse has emerged about 21st century education that, while outlining important 21st century skills and competences, typically makes no mention of ESD and arguably pays insufficient attention to the sustainability challenges that will likely define the prospects for human existence on this planet beyond the next century (Pipere, Veissen, & Salóte, 2015).

UNESCO established a Commission on Education for the Twenty-first Century under the chairmanship of Jacques Delors.

Its 1998 Report entitled *Learning: The Treasure Within*, shaped subsequent discussions around the globe, and spawned a series of OECD studies as part of the Millennium Learning Project. Commenting several years later on the “Case for Twenty-
first Century Learning,” OECD official Andreas Schleicher stated “A generation ago, teachers could expect that what they taught would last their students a lifetime. Today, because of rapid economic and social change, schools have to prepare students for jobs that have not yet been created, technologies that have not yet been invented and problems that we don’t yet know will arise” (Schleicher, 2016).

Many countries developed their own perspective on twenty-first century education. In the United States an organization called the Partnership for the 21st century (P21) focused primarily on preparing students (and by extension the US) to be more competitive in the current global economy. Given that the main founders of P21 were large IT companies like Cisco, Microsoft, and Intel, some criticized P21 as a narrowly disguised effort to increase sales of computers and software. A more trenchant criticism was that a narrow focus on ‘skill sets’ for employability “often fail[s] to take into consideration environmental limits, social justice, or adaptation to the deteriorating ability of the Earth to support human life and, therefore, [is] unlikely to serve the long term interests of learners, businesses, societies or the human species” (Luna, 2009).

A number of Canadian jurisdictions adopted education for the 21st century as a “frame” for thinking about future directions of education in Canada. As well, some of the most important work in Canada has been undertaken by an NGO called C21, which is dedicated to developing “a national learning vision founded on Canadian values and principles.” Its report called “Shifting Minds” provides an excellent summary and overview of how each province has approached the concept of 21st century education (Milton 2012). It offers seven “Guiding Principles” including the assertion that “literacy, numeracy, life skills and 21st Century competencies must now be the foundational learning outcomes of Canada’s public education system.” Furthermore, technology must be used “to attain the competencies required for economic, social, environmental, financial and personal growth and progress.”

The work of C21 is more well-rounded than that of P21 but both put a great deal of emphasis on preparing students for employment in the current global economy. The problem with this approach is that it begs the question whether the current global economy is itself sustainable over the course of this century. According to the World Business Council on Sustainable Development (WBCSD) – an organization whose membership comprises 29 of the largest, most important companies on the planet – it is not.

WBCSD has recently published a document entitled Vision 2050: The New Agenda for Business. To prepare the report the 29 member companies worked “with each other, with hundreds of representatives from business, government and civil society, with regional partners and with experts.” Their vision is simple and straightforward: “In 2050, some 9 billion people live well, and within the limits of the planet.” (World Business Council for Sustainable Development, 2010).

In disturbing contrast to this vision of a sustainable world WBCSD has projected the consequences of a continuation to 2050 of Business As Usual. The current trajectory leads to a very negative future including severe ecosystem degradation, increased climate change, dire social impacts of increasing poverty and global unemployment. In terms of environmental impact, their research shows that we would require approximately 2.3 planets earth to support current levels of resource and energy use, and waste production, projected out for a global population which by most estimates will reach 9 billion by 2050. So a continuation to 2050 of current business and economic practices is not close
to being sustainable on this planet. And yet most discussions of 21\textsuperscript{st} century education are premised on servicing, rather than transforming, the current global economy. To overhaul our education systems to better serve an economic model that is itself designed for the 20\textsuperscript{th} rather than the 21\textsuperscript{st} century is a bit like “navigating the complex environment of the future by peering relentlessly into a rear view mirror” (Robinson, 2001).

ESD brings a critical and missing perspective (Fischer et al, 2015). It is based on the assumption that appropriate education for the 21\textsuperscript{st} century must pay careful attention to the interlinked environmental, social and economic challenges facing humankind over the next 100 years or so. Students in primary and secondary schools today will likely live through most of the balance of this century. Life expectancies in the 80s and 90s will be commonplace. Students in Kindergarten today will be in mid-career in 2050. What sort of world will they face? What kinds of learning, and what life skills, will they require to live well in such a world?

ESD also recognizes that the future itself is not predetermined. On the contrary it is amenable to conscious efforts to move in a more desirable direction (notwithstanding the hard kernel of truth in the old saying “life is what happens while we are making plans”). A critical element of ESD is futures thinking: enhancing students’ capacity to envision a more sustainable future and to take actions in the present that will shift the trajectory of change in a more sustainable direction (Wayman, 2009; Iliško, 2014). Of course visioning, goal setting and strategic planning must be informed by an acute awareness of current reality and projected trends, of key drivers and high leverage opportunities.

At the present time there is a great deal of effort underway to undertake precisely this kind of futures thinking. In addition to the WBCSD Vision 2050 exercise, the international community is engaged in intensive visioning and negotiations on shaping a new global sustainable development agenda, and to define a set of Sustainable Development Goals. This comes at a time where three current global initiatives are coming to an end, UN Decade on ESD, which will be completed in 2014; the Millennium Development Goals (MDG’s) and Education for All both of which come to an end in 2015.

In the Report of the, Open Working Group Proposal for Sustainable Development Goals, released this summer, it is clear that education is essential to achieve sustainable change. The Open Working Group included ESD as one of the targets for the proposed goal education goal for the post 2015 development agenda, to “ensure inclusive and equitable quality education and promote life-long learning opportunities for all.” This goal is aligned with the target in the Muscat Agreement adopted at the UNESCO 2014 Global Education for All Meeting.

The Report reflects the following four “critical shifts” that “will make the coming fifteen-year period, 2015–2030, different from the MDG period through to 2015: (i) a drastically higher human impact on the physical Earth; (ii) rapid technological change; (iii) increasing inequality; and (iv) a growing diffusion and complexity of governance” (United Nations, n.d.).

Though education appears in Goal 4 of the list of 17 goals as a separate goal, education is important to all 17 goals (as it was to the entire 40 chapters of Agenda 21). That is the case because sustainability in essence poses an educational challenge for humankind (with the emphasis in education placed on learning rather than teaching): can we learn to live more sustainably on this planet?
Teaching and teachers do have an important role in supporting the requisite sustainability learning process but their principal role is no longer simply to transmit knowledge to students. “Education is not about filling a pail it is about lighting a fire.” In the digital age of the 21st century, teachers cannot possibly expect to be the omniscient source of knowledge. Their role instead is to inspire and guide their students-as-learners. Unfortunately, this is not the way most teachers have been educated to teach. Conventional approaches to teaching must be modified for the 21st century. As the OECD points out, “…there is a large gap – perhaps even a chasm – between the evidence on effective learning environments for the 21st century and established practice in today’s schools and classrooms” (Milton, 2012). A new pedagogy of “transformative education” must replace the “transmission model” of teaching and learning that continues as the dominant practice in most schools in the world.

What has changed to the point that we require a new pedagogy? First, new research has emerged on the human brain and how we learn. Second, because we are now living in a digital age, today’s youth are being “hard wired to the digital landscape within which they live” (Robinson, 2001). Third, evidence points to a crisis of disengagement from traditional teaching/learning approaches. Recent research has shown that only 37% of Canadian students still feel engaged by Grade 12; and that 98% of US high school students state that they find school “boring” (Canadian Education Association, n.d.).

The good news is that nearly all discussions of twenty first century education agrees: “traditional” education in which the teacher transmits knowledge to students, must give way to “transformational” education in which the teacher facilitates the acquisition of skills and competences in addition to essential values and knowledge. The teacher serves as guide/learning coach (G. Aikenhead, personal communication, May 13, 2013).

Typically, transformational pedagogy is seen to include the following features:

- Action-oriented, inquiry-based learning
- Systems-based learning
- Integrated, holistic approaches
- Creative use of technology

Typically missing from the twenty-first century education agenda, however, is attention to the sustainability context of social and environmental challenges that lie ahead, and acknowledgement of the existence of planetary limits to old style economic growth (Babad, 2013). These sustainability imperatives have convinced leading businesses (including of course the WBCSD) and business educators to call for a shift from a “brown economy” to a “green economy,” to 21st century sustainable enterprise (Bapna & Talberth, 2011).

How do we get there from here? WBCSD outlines nine “pathways” that could lead to the more sustainable world they envision. “The nine areas covered are values and behaviors, human development, economy, agriculture, forests, energy and power, buildings, mobility and materials.” The report goes on to explain that the “pathway and its elements neither prescribe nor predict, but are plausible stories the companies have created by ‘backcasting’, working back from the vision for 2050 and identifying the changes needed to reach it” (World Business Council for Sustainable Development, 2012, p. 10). Moreover, we would need to start using “true value economics” to measure “progress” not just in terms of economic data (especially GDP, which leaves out or distorts important economic phenomena) but also in terms of environmental and social impacts (Anielski, 2016).
By helping develop sustainability mindsets, education can and must contribute to the re-direction of economic activity in support of the vision and pathways (Spence, 2012). Without explicitly referencing ESD, Vision 2050 (2010) calls for its equivalent to be widely embedded:

*Educational content for a sustainable world.* Sustainability will be embedded into educational content. This will help encourage a change in the way people understand their social, technological, ecological and political environments. Besides reading and writing, additional types of literacy will be taught, with environmental and societal benefits. Natural literacy, for example, will catalyze a desire to protect and restore nature. (p. xx).

How realistic is the hope that a sustainable economy will emerge? The exciting reality is that a number of “green shoots” have already appeared. Several trends are converging in the same direction. In the US a non-profit named “B-Lab” has been hard at work encouraging the evolution from a twentieth century shareholder-style economy to a stakeholder economy which is more appropriate for the current century. The essence of the change concerns the purpose of corporations. Current corporate law requires companies to maximize shareholder value regardless of the consequences. This puts in place strong incentives to externalize costs wherever possible: damage to the environment or the local community is kept off the books.

By contrast a new category of company called a “B-Corp” (the B stands for Benefits) operate under a different code of ethics and behavior reflected in the following “Declaration of Interdependence”:

- *That we must be the change we seek in the world.*
- *That all business ought to be conducted as if people and place mattered.*
- *That, through their products, practices, and profits, businesses should aspire to do no harm and benefit all.*
- *To do so, requires that we act with the understanding that we are each dependent upon another and thus responsible for one another and future generations.*

The backbone of the B-corp movement (which in some states has required special legislation to make them legal) is a strong set of standards and rigorous monitoring by B-lab to ensure that the company has embedded the commitment to sustainability in its articles of incorporation, policies and practices. To date more than 500 US companies have earned B-corp certification, and 27 Canadian companies have also been certified.

Part and parcel of the emergence of the green economy is the growth of green jobs, defined by the United Nations Environment Program (Worldwatch Institute, 2008) as, *work in agricultural, manufacturing, research and development (R & D), administrative, and service activities that contribute(s) substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution.* (pg.).
Clearly the labor market is changing and employers are looking for employees with sustainability skills and understanding. Colleges and Universities are beginning to incorporate sustainability into their programs. From MBAs in sustainable-business practices to programs that give students the technical training necessary to operate wind turbines, etc. K-12 education needs to provide the SD foundation for this new reality in order for students to be better prepared for post-secondary education, entry into the labour market and in general, contributing to a more sustainable society.

Despite the impact on unemployment in the US of the Great Recession there is encouraging data on the growth of the green economy and green jobs. The US Bureau of Labor Statistics’ most recent report (2010–2011) indicates that the growth of green jobs exceeded any other sector’s. Many of these jobs are in areas of the economy served by Technical and Vocational Education and Training (TVET). UNESCO has put major emphasis on “greening TVET”, and a number of Canadian educational jurisdictions are doing likewise.

**Implications for ESD and Canadian Education**

The Education for the 21st century discourse arose initially through the work of UNESCO (the Delors Report) and the OECD (Millennium Learning Project). It gained prominence in the US through the work of an organization called Partnership for the 21st century (P21).

With sponsorship of leading IT companies like Microsoft, Intel and Cisco, the P21 initiative emphasizes information technology as the key to competitiveness and economic success. Its list of relevant skills (all of which are important for ESD as well) include:

a. **Ways of thinking.** Creativity, critical thinking, problem-solving, decision-making and learning,

b. **Ways of working.** Communication and collaboration,

c. **Tools for working.** Information and communications technology (ICT) and information literacy.

CMEC and several Ministries of Education in Canada developed ideas about twenty-first century education but the best and most comprehensive work has been carried about by an NGO called C21, which has published a paper entitled “Shifting Minds” The focus of most of the work on Canada has been on encouraging transformational pedagogy and a commitment to enable students to be more competitive in the global economy.

Although writings on 21st century education seldom reference ESD, the sustainability context must be central to twenty first century education. Moreover, the approach to business must be just as transformational as the approach to pedagogy. Students need to learn about and develop skills relevant to the emerging green economy not just the “old” business model of the 20th century, because their innovation and creativity will help the new form of sustainable enterprise emerge, for example by “developing the new technologies for a sustainable planet and affordable health care” (Wagner 2012, p. 3). ESD can help fill this gap.

This opens an exciting opportunity to connect the discourses on ESD and on 21st century education, particularly around their common promotion of transformational pedagogy (Kozak & Elliot, 2014), their common endorsement of various skill sets
including “skills for living in the world” which is the fourth set of skills identified by P21: Skills for living in the world. Citizenship, life and career, and personal and social responsibility (Kozak & Elliot, 2014).

We need to prepare students not only for employment in a sustainable economy, but also with the skills and values that will allow them to live sustainable lifestyles on this planet. This entails encouraging strong personal development as well as promoting responsible citizenship. Once again, an ESD perspective can enrich the discussion of twenty first century education.

References


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Social Emotional Learning:
Implementation of Sustainability-Oriented Program in Latvia

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Abstract
This article is focused on the description of the content and the implementation process of an originally developed, culturally appropriate and sustainable social and emotional learning program in Latvia. The article also includes the teachers’ self-reflected experience illustrated through the perspective of the program’s sample activities. The general goal of the program is to develop the emotional and social competencies of pupils, and at the same time to introduce to schoolteachers the principles necessary for combining academic and social emotional learning. As a preventive approach this program is aimed at all ages of pupils (from primary forms to secondary grades). During the school years 2012/13 and 2013/14 the social emotional learning program was introduced in 39 schools in Latvia (a total of 12,699 pupils). The participants implementing the program were 630 classroom teachers (614 female and 16 male with the mean age 45.04 years). As a result of the program implementation, social and emotional learning principles became a common approach for the entire school; the teachers became well versed on social emotional issues and received materials for conducting class lessons at each level; regular teacher supervisions were provided; regional supervisors were trained to sustain the pedagogical practice.

Keywords: social emotional learning, sustainability, schools, emotional competence, social competence

Introduction and Background
A combination of academic and social emotional learning is crucial for achieving the educational goals of the 21st century. Today’s schools in many countries are pressured to take greater responsibility for children’s social emotional literacy, which previously had been the function of the family. This is due to several reasons, for example, change in family structure, weakened contact with extended family and local community, increasing impact of media. As a result, a significant segment of children come to school with insufficient skills in behavioural and emotion regulation, social awareness and communication. In order to develop and strengthen the aforementioned cognitive, emotional and behavioural skills, various social and emotional learning programs have
been developed and implemented worldwide during the past decades. By developing children’s social and emotional skills, the relationship and collaboration between pupils and teachers is strengthened, study motivation is stimulated, and these improvements can facilitate the pupils’ attachment to school. These programs aim to increase the pupils’ ability to be attentive, listen, be calm, regulate their emotions and collaborate with others. This should help pupils to behave better and to learn more effectively. Educational standards generally require pupils to obtain a wide spectrum of knowledge, and if the pupil is aware of the interrelationships between different forms of knowledge and his/her individual needs, it should be easier to maintain motivation and to overcome obstacles. This should facilitate greater self-confidence and lead to an increase in academic achievement (Duckworth & Seligman, 2005). An increase in goal setting and problem solving skills should also empower the learner within the learning process (Elias, 2005).

Educators know that not all students with equal academic abilities are able to achieve the same success in their work and family life. The development of social and emotional competence is very important for it helps pupils to interact better with teachers and peers, maintain motivation, set goals, solve problems, learn more effectively, and to participate more fully in family, work and community lives.

The idea of social emotional learning has been brought to the attention of educators by Daniel Goleman (1995) in his elaboration of the concept of emotional intelligence (previously developed by Leuner, 1966; Greenspan, 1989; Salovey & Mayer, 1990). Emotional intelligence includes the ability to identify and regulate one’s emotions in an appropriate way as well as to recognize and tolerate emotions of others. The ability to behave adequately, to manage one’s emotions and overcome difficulties not only leads to personal satisfaction and psychological well-being, but also strengthens one’s sense of belonging and increases motivation. While emotional intelligence is mostly related to the understanding and governing of one’s emotions and inner potential, the social intellect (Goleman, 2006) is realized in the ability to form adequate interpersonal communication.

Social and emotional learning programs are competence-based, and one of their cornerstones is the understanding of competence as the flexible ability to use personal and environmental resources in order to reach adaptive goals (Waters & Sroufe, 1983). The key aspect for social and emotional education is skill training simultaneously with practical implementation and consistent maintaining of the practice in everyday life in all school settings. Therefore, by implementing social emotional learning in schools, the program becomes an integral part of the education process thus promoting sustainability. The integration of academic and social emotional learning is an approved approach for developing each student’s potential (Elias, 2003) and 80% of students benefit from universal level social and emotional learning (SEL) programs conducted by classroom teachers (casel.org). A longitudinal study (Malecki & Elliot, 2002) has confirmed that children with positive behaviour and good social skills tend to have higher academic achievement. The meta-analysis of various universal level SEL programs has shown that social and emotional skills can be taught to students, and that their presence improves academic learning and behavioural adjustment. The researchers found that SEL programs are effective at all educational levels in urban and rural areas, and that classroom teachers can effectively conduct these programs (Durlak et al., 2011).

The learning process is based on students’ collaboration with peers and adults; therefore, besides the emphasis on the development of social and emotional competencies, it is important for teachers to develop positive relationships with pupils. A good relation-
ship is the basis for positive teaching and positive discipline. Emotions influence the learning process, relationship quality and health; emotions can either stimulate or decrease students’ learning motivation (Durlak et al., 2011). Other researchers also underline the importance of relationships between teachers and pupils (Azzam, 2007; Klem & Connell, 2004; Geving, 2007). Expectations of pupils’ achievements and support in the learning process from teachers and parents play a significant role. Positive reinforcement and proactive support of positive behaviour from adults, as well as cooperative learning with peers can lead to a stronger attachment to the school. In this way the development of positive pupil–teacher relationships, the existence of positive expectations from teachers and appropriate teaching practices, school environment factors and focus on SEL competencies contribute to pupils’ short-term and long-term behavioural change (Catalano et al., 2002), as well as diminish disengagement from school (Willie, 2000; Black, 2002; Finn, 1993, as mentioned in Davis et al., 2004).

Furthermore, social and emotional learning programs in schools can proactively protect teachers against teacher burn-out, and these programs can facilitate teachers’ perceived self-efficacy, which is an important aspect of re-defining the teacher’s role. For the teacher it means not only to be the provider of academic knowledge, but also to be a person who aims to educate pupils about emotional and relationship issues, who helps them to develop their emotion regulation and relationship skills, and who facilitates the creation of a positive emotional climate in the classroom and school as a whole (Olweus, 2011).

Before the development of the first social emotional learning program in Latvia, the initial research study on social exclusion risks was conducted in 25 Latvian schools (Raščevska, Raževa, Martinsone, Tūbele, Vucenlazdns, & Vazne, 2012). The teachers reported that there were a large percentage of pupils who had insufficient academic achievement level and/or emotional and behaviour problems. The study results showed a significant correlation between teacher-reported ratings of learning difficulty, impulsivity, aggressive behaviour, self-regulation problems, anxiety and dysfunctional family/social factors for 12–19 year old pupils. It was concluded that a program persistently facilitating the development of social and emotional skills would be very important for all children, but perhaps even more so for children with learning difficulties, because the behavioural and emotional problems could be both contributing factors as well as sequel of the learning difficulties. The pupils with primary difficulty in emotion and/or behaviour regulation are in the greater need of learning self-regulation skills. However, for those pupils who have no learning, behaviour and/or emotion self-regulation problems, it is nevertheless important to also develop greater social and emotional competence because this will help them in various aspects of life in the future, and it will also help to strengthen their attachment to school. Thus, the program “Sociālā emocionālā audzināšana” (further the abbreviation SEA – from the program’s title in Latvian will be used) is focused on developing both emotional and social intelligence abilities by developing a variety of pupils’ skills via focused and targeted actions.

**Characteristics of Sustainable Social Emotional Learning Program**

Researchers agree that direct social emotional learning in classroom setting in year-by-year programs in combination with permanent integration of principles in all school settings are effective in short-term, but it is very important to prepare the school to
sustain the program for more than several years (Elias, 2010). It means that the program must become an integral and regular part of school practices (despite budget challenges, changes in personnel etc.). There are six indicators uniquely supportive of a program’s sustainability (suggested by Elias, 2010) – 1) engagement of new administrators (support system for teachers beyond the school’s local staff), 2) program consultations for school staff (program developer or outside expert consultation), 3) on-going training and professional development (constant training of staff and refreshment of practice, as well as opportunity for teachers to reflect on what has been done and how they feel about it), 4) involvement of role model teachers – instructional leaders (those who understand the program principles deeply and help to sustain the program through adapting it to actual situations), 5) program’s integration in the whole school curriculum, routine and climate, 6) access to external funding. According to the model of sustainability planning (Johnson et al., 2004), five steps of action should be taken – assessment, development, implementation, evaluation, and reassessment/modification.

The SEA program is based on these findings respecting the importance of teachers’ education, assistance during implementation, organizing regular supervisions (provided by program developers), strong cooperation with school principals/administration and preparation of program’s consultants in local municipalities. Thus the support network for the SEA program sustainability was created with the hope that after the European funding expires, the involved schools will be able to sustain the practice at a similar standard (level of quality).

The goal of this paper is to introduce the SEA – the first social emotional learning program developed in Latvia, and to illustrate its sustainability. As illustrative examples two of the SEA program activities will be presented: one classroom lesson and one prosocial activity project. The teachers’ experience in implementing the SEA activities will be illustrated with the examples of the teachers’ self-reflections expressed during the group supervision sessions.

Methodology

SEA Program Description

The SEA program is based on two reciprocal educational strategies for implementing social and emotional learning in schools. The first strategy has a greater focus on systematic and appropriate instruction of social and emotional issues, and the second strategy is focused upon the development of social and emotional skills, establishing a safe environment and participating in activities which help to integrate the school community, as suggested by Durlak (Durlak et al., 2011). The SEA program is aimed at all pupils and is implemented in the entire school simultaneously. This program was developed and implemented together with another program “Support for Positive Behaviour”, which also included the participation of all pupils within the school. Both of the programs were based on an initial analysis of already existing social, emotional and behavioural programs in other countries. The programs developed in Latvia included elements from various programs from other countries, but these elements were combined so that the programs in Latvia were developed specifically for the cultural context of Latvia. The purpose was to promote the sustainability of programs – to educate teachers and involve schools’ principals in order to integrate the topics in the curriculum and
even change school climate, as well as provide teachers with work materials for the subsequent years and create a support network for teachers.

The SEA program was designed with the aim to develop pupils’ social and emotional competencies so that the pupils may effectively self-regulate their own emotions, communicate positively, set realistic goals and solve problems responsibly.

The SEA program covers four major themes that correspond to core competencies of social and emotional intelligence: emotional self-regulation, positive social interaction, setting realistic and positive goals, and problem solving (see Table 1).

Table 1

<table>
<thead>
<tr>
<th>Major Themes of the SEA Program</th>
<th>Contents</th>
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<tbody>
<tr>
<td><strong>1. Recognition and expression of emotions and empathy.</strong></td>
<td>Students develop skills to recognize and name different emotions, to understand ambivalent emotions; they learn about and practice methods of emotion regulation; they develop the ability to take another’s perspective regarding thoughts and feelings; they develop an ability to acknowledge and enhance their own positive traits.</td>
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<td><strong>2. Positive social interaction models.</strong></td>
<td>Students develop an understanding of various social situations; they learn to work together and cooperate with people they disagree with, to understand their individual responsibility, to act in a polite and morally acceptable way, to respect the differences in other people, cultures, opinions, as well as to reject provocations and to seek assistance when necessary.</td>
</tr>
<tr>
<td><strong>3. Setting realistic and positive goals.</strong></td>
<td>Students are encouraged to realize their personal resources and abilities, to develop planning skills and set short- and long-term goals; they also learn to evaluate the effectiveness of their actions, and change ineffective methods and strategies.</td>
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<tr>
<td><strong>4. Problem solving.</strong></td>
<td>Students practice solving problems creatively by first exploring various available alternatives. They also learn direct communication skills, which are necessary to arrive at a compromise, and learn to recognize and prevent the escalation of a conflict.</td>
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</table>

The four major themes at each grade level remain the same, only the content depends on the pupils’ age. Thereby each theme is taught and the respective skills are obtained, strengthened and developed progressively year by year, thus maintaining their relevance and creating a persistent basis for the further development of pupils’ social and emotional competency.

A set of well-defined lesson plans together with additional materials relevant to all SEA topics are offered to the teachers. The Teacher’s Handbook includes a theoretical framework of the SEA program; detailed and structured lesson plans; CD with additional materials (video clips, written scenarios and situations for discussion and role-play, informative texts and interviews for reading, work sheets and PowerPoint presentations with illustrative materials), and a glossary of core concepts. Social and emotional learning is implemented through practical skill-learning activities – participation in discussions, group work, role-plays, behaviour modelling, research, projects, actions and the prosocial activity projects. Each activity has a detailed plan with a clear goal and common structure.
From the first to the tenth grade there are structured class sessions (two class hours for each topic, for a total of 8 class hours per school year) supervised by a teacher. Students of Grades 11 and 12 do not have SEA class sessions but they are engaged in prosocial activity projects, in which they use SEA competencies acquired in previous years. However, this is the first social emotional learning program in Latvia; therefore the students of older grades quite often do not have the basic knowledge in social and emotional issues. For that reason teachers were encouraged to conduct SEA lessons from the younger grades instead of prosocial activity projects when appropriate for the specific class.

Structure of the SEA Lesson and Teacher’s Role

Each SEA lesson has a well-defined, detailed, structured plan, consisting of the aim and the contents of the lesson. The originally tailored and culturally appropriate additional materials are provided for nearly every theme.

The lessons follow an overall class-session structure. The first phase is helping the pupils to set personally important goals for themselves; the second phase is the introduction of the topic in order to arouse the pupils’ attention, interest and motivation. The third phase is the facilitation of comprehension; and the fourth phase gives an opportunity for reflection. During the introduction students become familiar with the goal of the specific lesson, and the teacher poses some questions for initial discussion to introduce the topic. During the comprehension phase students actively learn and practice new skills; obtain, consider and discuss new information. The reflection phase includes feedback from the teacher (always positive and specific), self-evaluation, repetition and consolidation.

Teachers are encouraged to use this structure during the teaching of other subjects as well, especially regarding personally important goal setting. If the teacher explains why students should obtain and practice this knowledge and skills, the content of the lesson becomes individually more important. Thus students at the end of each lesson become more able to acknowledge their acquired knowledge/skills and evaluate their own progress.

The aforementioned reveals our effort not only to create a program but also provide the network for continuous SEA program implementation and integration in everyday routines.

Educator training is important for successful SEA implementation. Classroom teachers at their schools participated in the continuing education course “Social Emotional Learning in Schools”. During the theoretical and practical one-day seminar teachers became familiar with the concept of social and emotional development, the SEA program, they engaged in exercises using the Teacher’s Handbook together with the additional materials, and in conducting the SEA lessons in their classes.

After the training of the teachers, the next step was integrating the SEA program in the curriculum at each grade level and conducting 8 SEA class sessions or 2 prosocial activity projects (according to students’ age) in each class. During the school year class teachers attended group supervision sessions led by SEA program experts. Each classroom teacher was obliged to present in detail one of the SEA lessons or prosocial activity projects with the focus on her/his own successes, challenges or questions regarding the process and the content. The aim of the supervision was to provide individual support
for the teachers in the implementation of the SEA program, as well as to broaden the teachers’ knowledge and understanding of the content and interpretation of different SEA topics. Although every teacher presented only one class session, all of the teachers attended all of the group supervision sessions in order to obtain more knowledge, receive professional and emotional support, and to share their experience with other colleagues. In the supervision group, the teachers spoke about their experience in conducting the class sessions, thus enhancing their individual competence and at the same time developing stronger support and cooperation between the teachers themselves in order to achieve the unified goals. During the school year each classroom teacher spent an average of 6 hours in supervisions.

Participants and Procedure

Participants were 630 class teachers (614 (97%) female and 16 (3%) male with the mean age 45.04 years). These were all the classroom teachers from 39 Latvian schools involved in the implementation of the SEA program. All of them completed the requests of the continuous education course “Social Emotional learning in schools” – participated in the training seminar, conducted all of the program’s activities, took part in group supervisions and reflected on their experience. The reflections of the teachers will be illustrated through the prism of specific SEA activity descriptions.

Results and Discussion

Example: SEA Lesson

The lesson plan of an 8th grade SEA class session for the theme “Positive Social Interaction Models.” Sub-theme “Communication Obstacles”

Aim: to practice the necessary skills for listening to the discourse partner.

Additional materials: Video of an active listening situation.

Introduction / suggestion. The teacher explains that the goal of the class session is to become familiar with communication skills that the pupils will be able to use to receive more precise information offered by a discourse partner. It will help them to understand each other better and to have better relationships with their peers. The teacher encourages pupils to think about a topic, and asks with what kind of person it is easy to communicate.

Comprehension. Pupils watch a video fragment in which active listening skills are used and the teacher asks students to observe what exactly the listener is doing. (The teacher can do role-play with one of the pupils in front of the whole class as well. The task for the chosen pupil is to describe an interesting recent event or adventure from his/her experience. The teacher listens actively, but the task for the rest of the class is to observe what skills the teacher uses).

The teacher then summarizes and writes “active listening” elements on the blackboard, which include: 1) to repeat the main points of what the partner is speaking about with such phrases as: “So you think that...” , “You would like...”, “If I understood you correctly then...” ; 2) to reflect the emotions of the partner with empathy with such phrases as: “You feel...”, “I have a feeling that you...”; 3) to gather more information with questions such as: who? how? what?; 4) to maintain appropriate eye contact; 5) to
pay undivided attention, nod, encourage to tell more. If the role-play has been enacted
then the teacher asks the player how he/she felt during the conversation and how easy
or difficult the task was. The teacher asks the rest of the class to tell about their
observations – which “active listening” methods have been used by the video fragment
character or teacher in a case of role-play.

Pupils are divided into groups of three. One describes some event; the second one is
the listener who encourages the first to continue the story using the active listening
skills; the third one is the observer who checks which techniques “the listener” uses
during the conversation. The dialogue takes place for 5 minutes and afterwards students
change their roles. The exercise continues until all pupils have played each role. Each
group then briefly tells about their observations and conclusions to the rest of the class.

Reflection. The teacher summarizes the class session, for example – today pupils
practiced listening to another person, expressing interest in the story told by another,
encouraging conversation. The teacher creates positive and specific feedback, for
example: “Yes, it was positive how you leaned closer to the speaker and nodded.” At
the end teacher asks what the pupils have learned during the class session. It is important
that pupils try to evaluate themselves and tell what they have learned.

During the SEA supervision sessions, some teachers reflected that it was challenging
for them to articulate the aim of the lesson so that it would be meaningful for their
pupils (“Until now I thought that a teacher should know the goal of the lesson, but that
there was no need to express this to the pupils. It was useful that in the SEA handbook
there was a specific example given of what could be told to the pupils as to why it is
necessary for them to learn these skills. Now I will think about how to express to my
pupils the goal of the lesson – also for lessons in other subject areas”).

The teachers revealed that it was “conscious work” for them to maintain focus on
the aims of the SEA program because some of SEA themes were similar to those of
other traditional curriculum subjects, especially social sciences and literature (“Active
listening was already familiar to me. We had already practiced this in social science
lessons, only we gave this a different name”). This similarity in themes led to the risk
that the teachers would automatically conduct the SEA class session according to the
usual routine in an informative and didactic way, and that this could provoke resistance
from the pupils.

Another challenge mentioned by the teachers is that the SEA program is focused
on pluralism – facilitation and respect for different opinions, contrary to their everyday
pedagogical practice, which involves seeking the right answer (“In the role play I wanted
to point out the mistakes. When some of the pupils were unable to express their opinion,
I had a hard time trying not to tell them a ready-made answer” or “The pupils didn’t
know what active listening is. In the handbook there should be more information for
the teachers so that first we could teach and explain, and only then start the discussion”).

Those teachers who had facilitated pupils’ discussions often admitted that during
the SEA class sessions they had noticed various positive traits of pupils which they had
not been aware of previously.

The teachers noted that the role-play was an especially important SEA class activity
with the emphasis on positive and alternative behaviour models. To make this modelling
more natural, some additional video clips were created with the participation of school-
age children and youth, as well as popular personalities from different fields. The teachers
reported that the pupils accepted the examples offered by peers or well-known persona-
Social Emotional Learning: Implementation of Sustainability-Oriented Program.

lities more readily, for example, from music or sports. The content of additional video materials promoted the link between pupils’ everyday life and learning in school as well as facilitated their perception and assimilation of positive experience. The video material for the specific lesson was role-played by two well-known young Latvian actors (“The pupils recognized them as heroes from the TV series, so it was easier to speak about active listening, because we could discuss situations from the series”). On the other hand, the teachers who had participated in the role-play by themselves sometimes admitted their difficulties (“I did not feel confident that I was any good at the active listening” or “During the role play it was difficult to maintain discipline”).

Example: Prosocial Activity Project

Prosocial activity projects are short- or long-term positive activities, which give pupils the opportunity to behave prosocially according to their abilities. In order to reach the aim of the SEA program there are several steps in the implementation of prosocial activity projects.

First, agreement by all members of the group (the entire class) on the purpose of the project – what will be done (for example, pupils decide to give a concert for the kindergarten class).

Second, assignment of roles and responsibilities according to each pupil’s ability (who will perform, who will prepare the premises for the concert, design posters, take photos, organize the concert from preparation to realization, etc.). During this step the classroom teacher’s role is to discuss and help the pupils to draft a suitable program taking into account the developmental age of both the student group and their target audience.

Third, preparation. During this step it is important to record the process, for example, making photos or video, interviewing.

Fourth, implementation according to the plan as agreed.

Fifth, group review together with the classroom teacher discussing successes and challenges. It is important that pupils can formulate and describe their experience, have an opportunity to acknowledge their individual accomplishments and express their views concerning why it was necessary for each and every student to participate in this project, as well as to enjoy the accomplishment of a job well-done. Usually in this step pupils together with their teacher watch the presentation or video recording about the project preparation and process made by the “news correspondents” (also members of the class).

Sixth, the prosocial activity projects need publicity. Therefore, the final stage is, for example, creating a photo collage and setting it up on the school’s information board or writing an article in the school or local newspaper.

The prosocial activities seemed to be familiar to some of the teachers (“We always do the positive parts, such as decorating the hall for school events.”). However, the teachers conceded that up to now they had not observed the prosocial project steps during the positive activities (“We never achieve participation from everyone – normally only the more active ones do the work” or “Previously, we did not do the post-project discussion. We always thought one should not boast about one’s good deeds”). Thus, teachers noted that they had been pleasantly surprised by the pupils’ ability to self-reflect on their gains from the prosocial activity projects (“My students said that they
were positively energized by the project, that they made new contacts and gained opportunities for self-actualization”).

Some teachers recognized that after the SEA class sessions their relationship quality with pupils had improved. Respectively, pupils were more open in discussing their experience; they became more interested in the teacher’s personal opinion, as well as being more friendly and supportive to each other. According to the teachers’ observations, pupils often reminded each other to use some of the behavioural models from the SEA program in everyday situations.

The majority of teachers indicated that the SEA program had been successful in their classrooms. Some teachers revealed their own initial resistance to the acceptance of the psychological concepts underlying the program, which had initially led to an apprehensive stance about the value of the SEA program in general. Almost all of the teachers were particularly positive about the content of the Handbook and additional materials.

Conclusions

With the focus on the SEA program’s sustainability, several steps of action were performed.

First, assessment. An initial research in 25 schools in Latvia revealed insufficient social and emotional competences as one of the risk factors of social exclusion and school drop-out. Those findings approved the necessity of a targeted Social emotional learning program.

Second, development. The SEA program has been developed; the teacher handbook supported by CD with additional work materials has been prepared and initially approbated. The SEA program included a whole-school approach with the emphasis on 1) proactivity (aimed at all pupils, not only those struggling with different problems) and 2) sustainability (continuous implementation for more than several years).

Third, implementation. The SEA program was introduced and implemented in 39 schools at each grade level. Teachers completed the continuous education course “Social emotional learning in schools”. Regular group supervisions (led by program developers) for all 630 teachers were implemented. Afterwards we invited the best SEA teachers from every region of Latvia and prepared them as SEA supervisors, according to Elias, defined “deep involvement of role model teachers” (Elias, 2010). Simultaneously, we cooperated with the program coordinators in local municipalities to create the network for maintaining achieved practice in subsequent years.

Fourth, evaluation. We are still in the evaluation process. The initial results revealed the program’s short-term impact if the SEA was implemented together with other targeted programs. Statistically significant differences were found between the teachers’ ratings in the schools, which implemented the SEA and other programs, and the control group. The teachers considered relationship quality, cooperation between teachers and pupils, and understanding of positive behaviour habits.

Fifth, reassessment / modification. Now we are in the process of qualitative analysis of the teachers’ written self-reflections after the implementation of the SEA program. According to the teachers’ reflections, some improvements in lesson plans have been made.
Acknowledgments

The Social Emotional Learning program in Latvia was developed as a part of the European Social Fund Project “Development and Implementation of Support Programs for Establishing a Support System for Young People at Risk of Exclusion”. SEA was one of several subprograms aimed at reducing the risk of social exclusion and school drop-out rates of pupils.

References


Collaborative for academic social and emotional learning. www.casel.org


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Abstract

Web-based interventions (WBI) are purposefully developed online programs designed for a wide range of users (clients, patients, health care specialists, as well as medical practitioners) which allow obtaining and using information on various issues related to health maintenance and improvement.

On the basis of the analysis of scientific literature, the article provides an overview of WBI types and components, as well as a structural model of WBI and its user in the context of environment factors. The possibilities of using WBI for developing long-term health literacy of individuals are specified. By summarising the main advantages and limitations of using WBI, the possible suggestions for the WBI use and development are offered.

Keywords: web-based intervention, information literacy, health literacy, advantages and limitations, health literacy development

In the Information Age when the amount of information is constantly increasing, it is not only required from an individual to know how to use new technologies, but he/she must also possess skills to select and evaluate information according to his personal and professional goals. These information processing skills become extremely important during the process of education, especially during one’s studies at the university. To provide a qualitative study process it is equally important for both parties (lecturers and students) to supplement and purposefully structure their knowledge and competences, which nowadays is impossible to picture without intensive use of global network resources.

Information literacy has become a topical issue of scientific discussion since the appearance of first computers, primarily interpreted as effective possibility of information search, intentional selection of information sources, as well as a skill to transfer the searched information to others (Webber & Johnson, 2000). Information literacy is often reduced to computer literacy / e-literacy or the so-called media literacy. Nevertheless computer literacy is only one of the elements of information literacy and is an integral part of contemporary educational and cultural environment (Ivanovic, 2014). In the study process, information literacy is interpreted as the ability to select and use only
verified information, to work with sufficient amount of facts in order to draw equitable conclusions.

For qualitative educational process it is as equally important to be able to use various information acquisition strategies as to develop such qualities as persistence, attention to details and precaution while using limited number of information sources (Breivik & Gee, 2006). In searching and selecting information the following factors are important: initial level of an individual’s education, problem-solving skills and computer literacy, of course.

The continuous development of computer software during the last decade improves it by making it easier to use. Online communication options enable various types of professionals to carry out their research and educational work (Ritterband & Thorndike, 2006). The Internet is recognized as a fully-fledged social tool / social environment, which provides its users with huge amount of information without the necessity to leave home. At the same time, it opens up more new cognitive opportunities in issues concerning individuals’ health, and patterns of changes in their behaviour (Ritterband et al., 2009) are developed with the purpose of making health care and treatment available for everyone everywhere and any time via the use of the Internet (Perle, Langsam & Nierenberg, 2011).

Health literacy is a widely used concept in the health literature, which is connected with the educational level of people (patients) and their ability to maintain health, to improve it or to follow a prescribed treatment routine. Traditionally, in the pedagogical literature the term “literacy” is interpreted as a person’s ability to understand complicated issues, essential interconnections (of issues, fields), primarily through reading, writing, calculating, speaking, and listening (Doak, Doak & Root, 1996). The World Health Organisation defines health literacy as cognitive and social skills which determine one’s motivation and chances to get access, to understand and to use information in order to promote and to maintain good health (Health literacy and health behaviour). At the same time, it includes an individual’s skills to process and understand the basic information about health and health care services, including treatment, in order to make appropriate decisions (Information Society Development Guidelines for 2014–2020). In a broader sense, health literacy not only motivates an individual to evaluate and change his/her behaviour and health habits, but also encourages such behaviour, which generally provides effective public activity and would contribute to social capital development on a long-term basis.

Historically, experience and knowledge about maintaining health among both family members and professionals for a long time were passed from generation to generation. Originally, it was face to face communication, later joined by a written word and telephone consultations. The only way for a person to get some information about questions concerned was to see a doctor. Some decades ago, the press, radio and television were considered as the main information sources, but nowadays the Internet has become a vital source of daily information. Statistical data show that in 2014 77.7% of the population in Latvia were the Internet users (Latvian Internet Association, 2014). The World Wide Web offers a wide range of possibilities to acquire and exchange information on health literacy, including the following:

- Internet journals or blogs (Brice, 2009);
- Online databases / encyclopaedias (Wiki, Medpedia), which allow users to share their experience, as well as to add and modify a certain content;
Online social networks (for example, Facebook, Youtube and Twitter together form about 23% of all communication resources used on the Internet). There are opportunities to create forums related to health issues and to read opinions of others (Spila & Znotina, 2014);

- Web-based interventions for expanding one’s knowledge about health and health behaviour.

Web-based intervention (WBI) is a specially designed online programme, which allows the Internet user (patient, health care professional, student, lecturer or other interested person) not only to find the answer to his/her question, but also to be consulted by a professional, to fill in different self-assessment questionnaires or tests and to receive feedback, for example, happinesindicator.com (Ritterband et al., 2003). Because of the continuous development of different WBI, there are various researches carried out on the efficacy of WBI for the development of an individual’s health literacy and possible changes in behaviour (Schulz et al., 2014; Smit et al., 2015; Webbetal., 2010). The important research questions are: how to attract users, what exactly should be the design of a website, what are the options for the users’ interactive engagement.

Objective

The aim of the study was to conduct a literature review on the application of web-based interventions (WBI) for an individual’s health promotion and health literacy development, as well as to identify some advantages and limitations of particular types of WBI for developing health literacy on a long-term basis.

Design and Methods

From December 10, 2014 to April 10, 2015 using the keywords “web-based interventions” and “health literacy”, and their connection with the Boolean operator “AND” in EBSCO and SCIENCE DIRECT databases 74 sources were found. According to the aim of the study, 40 publications were selected for the analysis.

Results

Genesis and Connection of Concepts “Web-based Intervention” and “Health Literacy”

Considering the development of concepts “web-based intervention” and “health literacy”, for the time being, one can discuss only the genesis of the mentioned concepts, which covers a relatively short period of time.

The first discussion about health literacy dates back to the 1980–90s, when the so-called biomedical approach dominated in medical treatment of patients. It was a time when specialists started to believe that existing “command & control” based health care organization is non-effective (Sackett et al., 1996). From the moment when the concept of health literacy was mentioned for the first time (1974) in publications in the peer-reviewed scientific journals (1990) a considerable period of time has passed (Report, 2013).

Data obtained in researches in different countries show quite different and limited level of understanding of health maintenance and improvement. Originally, USA scientists...
(Rudd, 2007; Rudd et al., 2007), then also scientists in other countries (Nutbeam, 1998; Kutner et al., 2006; Jordan, et al., 2011) came up with the research results showing quite a low level of awareness, interest and understanding of respondents’ own health issues. In most cases, low health literacy turned out to be closely related to the respondents’ general educational level including previously mentioned limited reading, writing, calculating, speaking and listening skills (Nutbeam, 2000; Comparative Report, 2012; Sykes & Wills, 2014). More larger-scale studies in the field of health literacy pave the way for discussions about a wide range of health literacy types and their use in everyday life (Nutbeam, 2000; Schwartzberg et al., 2005; Rudd, 2007).

However, during the longitudinal study of eight European countries (Austria, Bulgaria, Greece, Germany, Denmark, Ireland, Spain and Poland) (The European Health Literacy Project 2009–2012) it was established that 46.3% of respondents have limited health literacy skills. Health literacy level (high, sufficient, low or very low) is directly related to an individual’s education, social and financial condition. The risk group is formed by 80% of people with low level of educational, 75% of them have very bad health condition, 60% – are older than 75 years, more than 70% consider themselves of low social status, 50% of the risk group are unemployed and pensioners (Comparative Report on Health literacy in eight EU Member States, 2012).

Literacy as a complex qualitative indicator of an individual’s competences includes certain skills and knowledge in different areas of life, including health issues (one’s own health, health of family members, and society’s health in general). Already in the middle of the 1990s, in order to broaden individuals’ awareness of health literacy, there appeared various web-based resources (Ritterband & Tate, 2009). For example, special online programmes offered different opportunities to find answers to the most frequently asked questions on websites: What is good health? What can I do to improve and maintain my health? Where can I find a health care specialist to solve a particular problem? Various scales and tests were developed as screening tools for evaluating an individual’s health related knowledge, for example, HALS (Health Activity Literacy Scale), TOFLA, & REALM (The Rapid Estimate of Adult Literacy in Medicine), NAAL (National Assessments of Adult Literacy) (Pleasant, 2009).

Types and Components of Web-based Intervention

The analysis of the selected scientific literature sources (Glanz, Rimer & Viswanath, 2008; Kerr, et al., 2006; Lustria et al., 2013; Ruwaard & Kok, 2015) allowed to identify different types of WBI that are useful for the improvement of an individual’s health literacy and health behaviour, and most effectively attracts WBI users, for example:

- Acquisition of information about one’s physical and mental health.
- Monitoring (detection, follow-up, comparison) of the health status, behaviour and habits.
- Goal setting and intentional change of behaviour.
- Specialists’ consultations by using communication options via the Internet (including: questions – answers; consultations via Skype).
- Therapeutic interventions for reducing physical and mental symptoms.

Alongside the mentioned ones, it is worth distinguishing also WBI types by their didactic goal, including (1) Patient Education Websites and (2) Interactive Health Communication applications (IHCAs) (Ritterband et al., 2003).
The key question is the following: What kind of WBI characteristics allow to attract potential WBI users most effectively? Studies in the field of health literacy show that various characteristics of the intervention itself can impact the probability of the engagement of potential clients (Lustria et al., 2013; Portnoy, et al., 2008; Short et al., 2015; Smit, Linn & van Weert, 2015).

According to Barak, Klein and Proudfoot (Barak, Klein & Proudfoot, 2009), there are four main WBI components providing the attraction of potential users: (1) Content of the program, (2) The multimedia use / choice, (3) Interactive online activities, (4) Guidance and supportive feedback (see Figure 1).

**Content of the program** is the most important WBI component. Starting the process of the content choice and development it is important to define precisely the target audience for which the program is envisaged. As far as health literacy is concerned, there are two main types of content direction the WBI provides: the content envisaged to educate the user about health related issues and the content designed to create changes in the user’s health related behaviour.

![Figure 1. Main components of WBI](image)

**The multimedia choice options and diversity.** WBI largely uses text to disseminate the program content, although other multimedia options including pictures/graphics, animations, audio, and video can make the resource offered online more attractive for its users. It is important that the user can modify the format of WBI content and to receive the given information in a more personalized way (Ritterband & Thorndike, 2006; Lauder, et al., 2013). The choice option itself also has the potential to enhance engagement and improve the outcomes (Barak, Klein & Proudfoot, 2009). Usually, the information published in the particular website is supplemented by references (links) to other similar educational programmes, for example, in the section “Health Communication and Health Information Technology” of the website “Healthy people 2020” (http://www.healthypeople.gov/) the user can find references to many other programs, including: “Educational and Community-Based Programs”, which, in its turn, has the hyperlink “Related Topic Areas” or “Learn more about...” and offers additional information on particular issues. Each of the websites is enhanced by graphic, animation, audio and video elements.

**Interactive online activities.** The third component relates to whether the WBI offers a patient the opportunity to participate within the program in a more interactive way
(e.g., the possibility to broaden the knowledge about one’s health by using self-assessment and self-monitoring tools offered by WBI). “Non face-to-face” communication mode allows the WBI user to be more open to himself/herself about his/her own health behaviour and habits, for example, by assigning a computer to “calculate” one’s eating and drinking or alcohol use habits (for example, “Welcome to Down Your Drink”; “How much is too much”).

Guidance and Supportive Feedback. This WBI component indicates if the WBI users can get some “external” information about themselves and their progress when using a certain online programme or website. Although all WBI require users to act by themselves to some extent, the type and the degree of feedback offered can vary considerably; from none (no guidance or supportive feedback mechanism provided) to high (provision of sufficient amounts of tailored feedback) (Barak, Klein & Proudfoot, 2009).

Structural Model of Cooperation Between WBI and its User for Developing Health Literacy

Already by its nature WBI is evaluated as a multi-dimensional category; therefore, a clear definition of it is not possible. The authors Barak, Klein and Proudfoot treat WBI as the intervention guided by a client himself/herself, which is based on specially designed online program and operates in the website. WBI is used by clients, who look for help related to physical and mental health issues. As to health literacy, the aim of WBI is to create positive changes in the client by improving his/her knowledge, awareness and understanding of physical and mental health by using various information reflection and interactive communication types.

The use of WBI, its diversity and productivity are determined by the factors that can be relatively combined into three categories: environmental factors, individual characteristics of a potential client/user, and support / information provided in the Internet, namely – WBI itself (Short et al., 2015; Ritterband & Tate, 2009) (see Figure 2).

Potential Internet user lives in certain circumstances and his/her resources largely depend on environmental factors (O’Brien & Toms, 2008; Kelders et al., 2012). An individual’s health literacy is developed and expanded by the context – the total amount of information about health and healthy lifestyle in the media, the emphasis on health as an individual and cultural value, financial support given by state and local government for promoting public health. Another essential factor is the health care system – if a person can easily approach a health care specialist, the proportion of educational and preventive work – whether the available services are oriented only towards treatment of disease symptoms or to prophylaxis and health education. Evaluating the environmental factors of WBI use, also the Internet coverage in the particular region shall be taken into consideration – access to the Internet, the Internet speed and connection quality, as well as personal resources and material options of the potential user, including simple and convenient device by mean of which to access the Web (Short et al., 2015).

When developing WBI, even the most favourable environment alone cannot guarantee the development of the public health literacy in general. Much depends on the potential WBI user, his/her demographic indicators – age, social status and level of education. Younger people with at least an average level of material well-being use opportunities
offered by the Web more actively than do elderly people or people with unstable material security. The characterising attributes of an individual and his/her personality are the qualities of character, motivation to work and search for information (Short et al., 2015).

Figure 2. Structural cooperation model of WBI and its users in the context of environmental factors for developing health literacy

The interest to maintain and to improve health by practising habits of healthy lifestyle may come from a person himself/herself. The motivation to search and use WBI thus improving health literacy can be related to the existing / previous emotional and physical health condition of an individual or his/her family member, which can stimulate (or on the contrary – hinder) the performance of the necessary procedures for search of possible help (Crutzen, Ruiter & de Vries, 2014). An equally important qualitative indicator of a potential WBI user is his/her information processing skills (Williams-Piehota et al., 2003) and computer literacy (information literacy & health literacy) and whether the client him/herself (according to the definition of WBI) is able to manage and direct WBI as a process. Thus, only those users who possess the above described originally determined set of skills can develop health literacy via WBI.

WBI as a cooperation component. The role of intervention as the mode component and element developing health literacy is related to the characteristics of the resources available in the Web. Despite the fact that nowadays the Internet sources are very diverse, scholars are still discussing the issue of how to adapt WBI to its user in a most accurate and effective way, how to ensure regular and active engagement of clients, what kind of content, visualisation and interactivity elements should be included in order to achieve the desired changes (Abbott et al., 2014; O’Brien & Toms, 2008; Smit, Linn & van Weert, 2015). The use or non-use of WBI is determined by its client. Creating interest in the user is a first step in the adoption of intervention, which might ultimately result in people actually using it. Thereby, it is important to explore and balance the
WBI structure (content, visual attraction, usability) with characteristics of the potential target group (interest, topicality, level of initial skills and abilities). The process of adjusting the WBI characteristics and intervention materials to the user’s individual characteristics is called tailoring or computer-tailoring (de Vries & Brug, 1999). The results of meta-analysis on web-based tailored health behaviour change interventions indicate that online interventions that are tailored to the individual participant can effectively improve health related behaviour (Lustria et al., 2013). A lack of consistency between someone’s individual characteristics (for example, learning style, information literacy, motivation) and the delivery mode of health message can inhibit the processing of the information (Smit, Linn & van Weert, 2015). In contrast, the congruence between the user’s individual characteristics and the delivery mode is expected to enhance the motivation to attend to and process the presented information (Rimer & Kreuter, 2006).

Each WBI shall choose its evaluation criteria. Besides, the received feedback is not easily and unequivocally evaluated. For example, the evaluation criteria in WBI educating an individual about the basic principles of healthy diet or health behavioural issues will be different. In the same way, also the planned result will differ, but neither one nor the other intervention will solve sleep disorders of its user, which as a side effect could be observed in one, as well in the other case (Evers et al., 2005). Thus, it is problematic to understand and evaluate to what extent the observed changes are direct WBI consequences, and to what extent – a visit of a particular specialist stimulated by WBI and a result of therapy.

Having said the above, taking into account only the factors mentioned and deliberative application of each particular case could promote health literacy of a WBI user – the development aimed at achieving such level of literacy that the user is able to keep and maintain health, to improve it, as well as to follow a prescribed treatment routine.

Possibilities and Limitations of the WBI

While analysing the selected scientific literature sources, particular WBI possibilities and limitations were identified. As it is seen in Table 1, WBI possibilities and disadvantages revealed can be grouped by the following aspects, some of which are:

1) are related to the specific features of the method itself;
2) affect customer engagement;
3) are attributed to the invested resources.

Regarding the characteristics of WBI as a method, one of the most important advantages is that the use of Web resources allows the user/client to overcome the so-called “stigma” barrier (Greek “stigma” (stigmatos) ‘a mark, dot, puncture’). It is an opportunity to search for the necessary information and/or to receive online help maintaining anonymity. On the one hand, an opportunity to look for the answer to a topical question without directly contacting medical personnel, the client’s anxiety, concerns and sense of shame can be reduced (Abbott, et al., 2014). On the other hand, indirect contact with the Web as the information provider and the ability to access impersonal information on health promote dehumanization of the health care system (Lovejoy et at., 2009). The “human contact” with a professional is lost, as well as the opportunity to receive support or encouragement, which in many cases is evaluated as an additional resource for the improvement of an individual’s health condition. Studies show that in communication with computer programme, people have greater self-revelation and self-
Web-Based Intervention for Developing Long-Term Health Literacy of Individuals

reflection than by communicating with other people (Suler, 2002). The fact that, when using Web resources, a client tends to be more truthful to his/her answers, can be reflected in a more precise feedback. At the same time, the absence of a direct contact can be expressed also as a WBI disadvantage. It is the case when a more precise feedback is created directly by contacting a specialist, because his expert conclusion is based not only on the information provided by the client, but also on his/her personal experience and observations during the contact. Furthermore, a direct contact with a specialist can be a motivating reason for a client to use WBI to comprehend more his/her condition and to receive feedback (Paxtonet al., 2007).

Another WBI advantage is that the information available in the Web can help to specify/clarify one’s health condition, to attract attention to the significance of health maintenance, to reduce prejudices of health care and treatment methods, as well as to motivate for searching help from a particular specialist. The risk is the great availability of web intervention and information diversity that can keep the clients with severe health problems back from seeking appropriate help (Gould et al., 2002). On the one hand – network facilitates possibilities to start and/or maintain mutual communication among clients who are trying to solve similar problems (Fuller & Kroese, 2015), on the other hand – communication on the Internet is related to the risk of spreading confidential information (see Table 1).

Table 1
Advantages and Limitations of the WBI

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Limitations</th>
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<tbody>
<tr>
<td><strong>The characteristics of the WBI method</strong></td>
<td></td>
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<tr>
<td>Overcoming the stigma barrier.</td>
<td>Dehumanization of mutual communication environment.</td>
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<tr>
<td>Greater self-disclosure and self-reflection.</td>
<td>No direct contact with a specialist that may be necessary.</td>
</tr>
<tr>
<td>Realization of actual difficulty and motivation to seek a particular professional.</td>
<td>Preventing clients with severe mental and physical health problems from seeking appropriate assistance.</td>
</tr>
<tr>
<td>Initiation and/or facilitation of communication between clients who are dealing with similar difficulties.</td>
<td>The risk of spread of confidential information.</td>
</tr>
<tr>
<td><strong>Engagement of clients</strong></td>
<td></td>
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<tr>
<td>24/7 availability regardless of the living region.</td>
<td>Low involvement of the target group.</td>
</tr>
<tr>
<td>Covering a wide range of clients, including those who do not have access to face-to-face assistance.</td>
<td>Difficulty to adjust intervention to the individual characteristics of clients (interest, ways of perception, etc.).</td>
</tr>
<tr>
<td><strong>Effectiveness and resource consumption of WBI</strong></td>
<td></td>
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<tr>
<td>Effective way to evaluate and change behaviour.</td>
<td>Not suited to all customers.</td>
</tr>
<tr>
<td>Cost-effectiveness and at the same time showing similar results as structured face-to-face interventions (effect size).</td>
<td>Public access to web-based intervention implies the risk that it will be used disregarding important conditions.</td>
</tr>
<tr>
<td>Allowing one to collect data.</td>
<td>A lot of resources to design and develop original intervention.</td>
</tr>
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</table>
Regarding clients’ engagement, WBI is available for 24 hours a day and 7 days a week, which opens opportunities for people from various regions to use them at any time of a day (Wienert & Kuhlmann, 2015). WBI can have a wide range of clients, including those who have no chance to get an on-site assistance and consultations (a specialist is not available, demand exceeds supply) (Perle, Langsam & Nierenberg, 2011). Comparing the quantitative indicators of people engaged in communication, one can imagine the difference between people engaged in non-site prophylactic or informative conversations and the number of people learning the same information at the same time from various places (sometimes even without leaving home) by using the Web resources. Alongside the mentioned aspects, some empirical studies report the low engagement of the specific target group users in WBI (Davies et al., 2012; Kelders et al., 2012). The authors provide several explanations of this phenomenon: a potential client is not interested to look for assistance, there is a lack of motivation to seek answers to unclear questions on their own, and there is no confidence in WBI efficiency. Potential disadvantages of WBI are also related to the fact that the Web resources do not secure the necessary regularity of users’ participation. In order to achieve changes in the client’s behaviour, to promote healthy lifestyle, to develop health literacy, single connection to the website (to the relevant issue or theme) is not enough, it is important to provide a purposeful activity by the WBI user for a long term (O’Brien & Toms, 2008).

Regarding efficiency and invested resources, studies show that WBI is an effective way to evaluate and change an individual’s behaviour (Portnoy et al., 2008; Ritterband & Tate, 2009; Perle, Langsam & Nierenberg, 2011). However, such interventions do not fit all clients, because they largely depend on one’s information processing skills, computer skills, abilities to evaluate information critically, to reflect on it and to answer the necessary questions in indirect contact. The empirical studies on the efficiency and cost-effectiveness of WBI aimed to improve health allow suggesting that WBI are definitely more economically advantageous and at the same time show similar results as analogous structured face-to-face interventions (Klein, Richards & Austin, 2006; Mihalopoulos et al., 2005; Ruwaard & Kok, 2015). Analysing the cost-effectiveness of different Internet-based lifestyle interventions, for example, WBI aimed at alcohol reduction, decreasing depressive symptoms, smoking cessation, reducing lifestyle associated risk factors, Smit and colleagues (Smit et al., 2015) have concluded that the Internet-based interventions are not only effective, but also cost-effective.

At the same time, scientific literature provides also references to important WBI threats. For example, public and free access to WBI build the risk that it will be used ignoring important conditions, among them, the client does not acquaint himself/herself with all necessary information, misunderstands it, and uses information from dubious Web (Perle, Langsam & Nierenberg, 2011).

Conclusions and Practical Implications

WBI development is a time consuming and laborious process, which is based on clearly defined goals. In order to achieve these goals, the chosen methodology and also the way interventions are reflected in literature, must be appropriate. Clear communication, information on health care services in a simple and understandable language improves and broadens an individual’s knowledge in the field of health literacy.
WBI in the field of health care:
- rapidly develops and offers additional alternatives for individuals’ education and promotes positive changes in their behaviour and habits,
- is an additional tool, not a substitute for the traditional direct, face to face consultations with a health care specialist,
- allows extending / enriching the methods of mutual communication and engages clients, who have no opportunities or resources to receive a direct contact,
- creates a need to develop guidelines for the implementation of this practice, as well as for the research of WBI efficiency and its potential limitations.

Qualitatively developed WBI aimed at promoting health literacy is an intentionally developed product that includes a large number of characteristics (content/ information offered to users, interactive tasks, options for choice, opportunities to develop new habits through various purposefully developed tasks and to achieve desired goals). Only the identification of a problem and community education prepares an individual for making an autonomous decision concerning his/her health.

The results of the literature overview performed allowed for the identification of potential advantages and limitations in WBI usage. This analysis is important in order to develop an intervention for improving health literacy in a particular target group. The results show that WBI is widely used, economically beneficial and useful in health maintenance and development of health literacy on a long-term basis and has prospects of longevity.

By creating and developing WBI in Latvia, on the basis of the already existing experience, it is important to approbate its use, primarily developing health literacy in a particular target group. One of the respondent groups, for whom WBI would be especially effectively applicable, is young people with developed computer and the Internet usage skills.

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The Effect of Professional Development on Teacher Efficacy and Teachers’ Self-Analysis of Their Efficacy Change

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Abstract

The current study examined the effect of an online professional development learning experience on teachers’ self-efficacy through 148 (Male=22; Female=126) K-12 teachers and school educators. The Teachers’ Self-Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001) was administered twice with a five-week gap. Additionally, all participants’ descriptive self-analysis of their own score change was examined to analyze teachers’ attributions of their self-efficacy change. Both quantitative and qualitative methodologies were used to analyze the data. The findings indicated that teacher efficacy increased as a result of their online professional development experience. Participants’ self-analysis of their efficacy change provided some possible explanations for mixed reports for the influence of experience on teacher efficacy.

Keywords: teacher efficacy, teacher reflection, self-efficacy change, teacher professional development for sustainable development

The aim of this study is to investigate the effect of professional development on teacher efficacy and how teachers interpret their efficacy change. The sense of self-efficacy has been widely studied in the field of education as it has been recognized as an important factor that influences student achievement and behavior (Skaalvik & Skaalvik, 2007; Tschannen Moran & Woolfolk Hoy, 2001). Within the realm of social-cognitivism, Albert Bandura (1977) identified the concept of self-efficacy as missing, yet an important factor in his seminal publication, “Self-efficacy: Toward a Unifying Theory of Behavioral Change.” Self-efficacy is defined as individuals’ beliefs and judgments of their capabilities to manage and execute necessary courses of action (Bandura, 1997). The concept of teacher efficacy soon grew out of Bandura’s self-efficacy, and a group of researchers from RAND, which is a nonprofit research organization, made an early effort in defining teacher efficacy (Armor, D., Conroy-Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G., 1976; Berman, McLaughlin, Bass, Pauly, & Zellman, 1977).
The Effect of Professional Development on Teacher Efficacy and Teachers’...

85

The concept of a teacher’s self-efficacy refers to what he or she can do, and this area of research can be broadly categorized into three. First, this line of research reported the effect of teacher efficacy on students. Research has shown that a teacher’s judgment of how much he or she can do affects student learning due to its impact on instructional choice (Ashton & Webb, 1986; Bandura, 1997; Guskey, 1988; Ross, 1998) and persistence (Dembo & Gibson, 1985; Soodak & Podell, 1994; Woolfolk, Rosoff, & Hoy, 1990). For instance, efficacious teachers tend to maintain high levels of student engagement (Good & Brophy, 2003), and spend more time with struggling students by perceiving them as teachable with extra attention (Gibson & Dembo, 1984). Wolters and Daugherty (2007) even suggested a correlation between teacher efficacy and mastery goal oriented classrooms they create in their classrooms. In a recent empirical study, Fackler and Malmberg (2016) showed a correlation between teacher efficacy and student learning achievement, and claimed a universal pattern in fourteen OECD countries.

Researchers also examined teacher efficacy in contexts or conditions in which a teacher performs tasks. Many teacher efficacy researchers commonly include school environment characteristics or job satisfaction with their perceived work environment as contextual factors. For example, teachers with low self-efficacy tend to show higher stress that is associated with their profession (Betoret, 2006), and it is also closely related to job satisfaction and teacher burnout (e.g., Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2007). The reported findings regarding the close link between teacher efficacy and contextual variables are perhaps due to the nature of teacher efficacy that is context specific (Bandura, 1977; Tschannen-Moran & Woolfolk Hoy, 2001).

Third, many researchers studied teacher efficacy with a teacher’s own demographic factors including teaching grade level and years of teaching experience. By conducting a study involving preschool to high school teachers, Wolters and Daugherty (2007) reported an inversely related correlation between teacher efficacy and their grade level they teach. As an antecedent of teacher’s self-efficacy, teaching experience in this line of research has been extensively studied. Although many researchers have reported the positive effects of teacher efficacy on student learning and teaching, mixed results have been found regarding the change of teacher efficacy over time (e.g., Ghai & Yaghi, 1997; Woolfolk Hoy & Burke Spero, 2005). While Bandura (1997) believed that the sense of efficacy remains somewhat stable, Tschannen-Moran et al. (1998) reported that teacher efficacy could either solidify over time or change with their experience in teaching.

In spite of the mixed reports on the efficacy change over time, there is a need for the continued scholarly interest in teacher efficacy because it provides important information, which deals with teacher quality and sustainability. The high correlation between the quality of a teacher and student performance is a widely accepted notion, and thus the focus on teacher quality has had a long history in the field of education. In 1983, the National Commission on Excellence in Education called for a national attention to increasing a quality teacher workforce in a report called, A Nation at Risk. Spurred by the report, many educators, policymakers, scholars in the field have been putting efforts for improving teaching force. National Council on Teacher Quality and National Board for Professional Teaching Standards are some of the good example organizations that embodied the idea, and the need and importance of more rigorous standards and accountability for teachers continue to get emphasized.
In accordance with the call for highly qualifying teachers in the field, National Commission on Teaching and America’s Future (1996) emphasized the need for high-quality continuing education, and education schools have paid attention to strengthening continuing education for teachers through master’s programs (Putnam & Borko, 2000). Consequently, the percentage of teachers who either hold or seek master’s degree in education has only risen. According to the Council of Graduate Schools (2005), during the academic year of 2008 and 2009, the field of education remains as the discipline that awarded the most number of master’s degrees, which is 23.8% of all graduate students. More recent report shows that the percentage of teachers who have either a master’s or higher degree increased up to 38 (National Center for Education Statistics, 2012).

While the number of teachers who hold master’s degrees and the emphasis on increasing teacher quality through professional development education has increased in various forms whether on campus or online, there continues to be a scarcity of research specific to innovative programs (Tom, 1999), such as fast growing online professional development programs. With the growing population of teachers who actively seek advanced degrees or professional continuing education opportunities, there is a need to examine how this continuing education affects teacher efficacy. More careful examination of how teaching experience affects teachers’ self-efficacy is needed, especially with the changing demographics of teaching workforce (Klassen & Chiu, 2010). Most of the existing literature on teacher efficacy has looked at teaching experience simply as a number of years in teaching. In particular, little attention has been given to how teacher efficacy evolves as a result of professional enhancement programs or through teachers’ own reflection within the context.

Therefore, the purpose of this study was to examine teacher efficacy change using the Teachers’ Self-Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk (2001). Two research questions guided this study:

1. How does teacher efficacy change with an online professional development experience?
2. What are the teachers’ attributions of their increased or decreased sense of self-efficacy?

Method

Participants

A total of 148 teachers and school educators who were enrolled in an online professional development program participated in this study. Although participants resided in various locations, at the time of their participation, they were taking an advanced Master’s degree program at a state university’s college of education. They came from various grade levels of teaching (29.7% high school, 25% middle school, 35.1% elementary school, 6.8% kindergarten, 3.4% unknown). Female participants were predominant (85.1%), and the following races and ethnicities were represented in the sample: 63.5% White/Caucasian, 17.6% African American, 7.4% Hispanic, 3.4% American Indian/Alaskan, 2% Asian/Pacific Islander, and 6.2% Other or Unknown. Participants’ average age was 36.94 (Mdn=36, SD=9.27), and their average year of teaching was 8.77 (Mdn=7, SD=6.29).
Measure

Teachers’ Sense of Efficacy Scale (TSES), developed by Tschannen-Moran and Woolfolk Hoy (2001), is comprised of three subscales: Instructional Strategies, Student Engagement, and Classroom Management. A total of twenty-four items are rated on a 9-point Likert scale, one indicating nothing and nine indicating a great deal. The instrument has been widely used in the education field to assess teacher competence of using a variety of instructional and assessment strategies in their teaching contexts. Prior to completing the professional development session, the participants were asked to fill out the teacher efficacy scale, TSES. Post survey was sent out for them to fill out upon completion of the online learning session. For the teacher efficacy self-analysis, participants were asked to write down their self-analysis of efficacy change by comparing their pre and post questionnaire responses. All responses were collected online. Thus, there was no face-to-face contact with the researcher. The following instruction was given to all participants at the end of their professional development learning: add your scores for each subscale of TSES, and analyze your sense of self-efficacy, especially by comparing your scores from the beginning of your learning and now.

Treatment

The professional development consisted of five-week online learning module, which was broken down into weekly learning so that participants could receive constructive feedback from their professional learning coaches along the way. In multiple ways, the learning module contributed to the four sources of efficacy identified by Bandura (1997): mastery experiences, vicarious experiences, social persuasion, and physiological and affective states. First, for mastery experience, participants were introduced to effective instructional strategies to engage students through motivational theories with classroom application strategies. Theoretical part of the participants’ learning includes online tutorials to watch and scholarly journals and books for reading. Over the period of five weeks, the participants were involved in applying motivational theories and concepts in their classrooms through various learning mediums, such as online discussions with peers, readings of current research on the topic, and applying tasks of the learned materials. Second, for vicarious experiences, participants were given tasks to observe their colleagues on campus bringing about student learning, and to observe an exemplary teacher’s classroom and see how she engaged students in learning by using various instructional strategies. Third, for social persuasion, participants were given encouragement and appropriate feedback during their professional development learning experiences. Fourth, for physiological and affective states, participants were coached to make abstract and big ideas into more concrete and smaller chunks because feelings of stress and anxiety negatively affect teacher efficacy. Through weekly online discussion forums, participants were also given ample opportunities to share their stressful situations along with possible solutions or actual cases where they resolved difficult cases amongst each other.
Analysis

To explore the first research question on the effect of online professional development session, a paired T-test and one-way ANOVA were conducted with three dimensions of teacher efficacy (instructional strategies, classroom management, and student engagement) along with their years of professional experience, grade level they teach, and sex. Constant comparison method (Glaser & Strauss, 1967) was used for the second research question in order to analyze participants’ self-description of their efficacy change.

Results

To explore the main effect of the online professional development session on teacher efficacy, a paired samples t-test was conducted in each of the three dimensions of teacher efficacy: Instructional Strategies, Classroom Management, and Student Engagement. There was a significant difference in scores for pre (M = 7.46, SD = .85) and post (M = 8.08, SD = .79) scores of instructional strategies; t (147) = -13.92, p = .05. A significant score difference was found for pre (M = 7.64, SD = .99) and post (M = 8.15, SD = .83) scores of classroom management; t (147) = -9.57, p < .001. Also, there was a significant difference in scores for pre (M = 7.08, SD = .07) and post (M = 7.90, SD = .07) scores of student engagement (see Table 1).

Table 1
Comparisons of Group Means and Standard Deviations for Teacher Efficacy Scale Score

<table>
<thead>
<tr>
<th>Scale</th>
<th>Pre M</th>
<th>Pre SD</th>
<th>Post M</th>
<th>Post SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSES_IS</td>
<td>59.67</td>
<td>6.82</td>
<td>64.63</td>
<td>6.31</td>
</tr>
<tr>
<td>TSES_SE</td>
<td>56.68</td>
<td>7.02</td>
<td>63.22</td>
<td>6.46</td>
</tr>
<tr>
<td>TSES_CM</td>
<td>61.09</td>
<td>7.95</td>
<td>65.18</td>
<td>6.65</td>
</tr>
</tbody>
</table>

Note. IS = Instructional Strategy; SE = Student Engagement; CM = Classroom Management.

These results suggest that online professional development education does have a positive effect on teacher efficacy. However, one-way ANOVA analyses revealed no significant differences at p < .05 for all three dimensions of teacher efficacy against the independent variables of sex and grade level they teach.

Descriptive Data Analyses

Regarding the second research question, there were three emerging themes for teacher efficacy change: professional enhancement, frame of reference change, and learned helpless (see Table 2).
Table 2

Attribution to Teacher Efficacy Change – Themes, and Example Quotes from Participants

<table>
<thead>
<tr>
<th>Theme</th>
<th>Definition</th>
<th>Example quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme 1: Professional enhancement</td>
<td>Teachers’ knowledge gain through learning or positive outcomes</td>
<td>I love knowing that I can set goals for myself as a learner and a teacher, and meet them. I learned so many concrete strategies about student engagement and have been able to apply them into my instruction throughout my learning.</td>
</tr>
<tr>
<td>Theme 2: Frame of reference change</td>
<td>Teachers’ adjustment of their own judgment or evaluation system</td>
<td>… on the first time around I scored myself lower because I was unsure. After learning about all the instructional strategies, I see so many things... I believe this made me feel more confident in those areas. At the end of my five-week learning... I think I was overconfident and not truly understanding all that was involved the first week of my learning.</td>
</tr>
<tr>
<td>Theme 3: Learned helplessness</td>
<td>Teachers’ repeated unsuccessful or negative experience</td>
<td>In the district I teach, my hands are somewhat tied in regards to curriculum. This may contribute to my students’ level of engagement to some degree. There is only so much a teacher can do.</td>
</tr>
</tbody>
</table>

The first theme, professional enhancement, is characterized as teachers’ professional enhancement through knowledge gain or their successful outcomes. Many participants interpreted their increased teacher efficacy as the outcome of their knowledge gain through the online professional development opportunity. During the five weeks, participants were engaged in scholarly article discussion, forming learning communities with their colleagues, and classroom instruction application exercises. Developing a solid foundation of theories and concepts through an online professional development platform seemed to positively affect participants’ efficacy as teachers. Below are some example self-analysis comments under this theme:

I did not expect such change [of teacher efficacy]. I really thought as I was completing the questionnaire that my scores would be the same. After I tallied my points, I looked back at my week 1 scores and I have increased in all three areas... I believe the reason I feel so good about my teaching abilities is because I feel I’ve been given some very useful information and tools that I can apply in class... I love knowing that I can set goals for myself as a learner and a teacher, and meet them. That gives me great satisfaction. – Female, middle school teacher with 10 year of teaching experience

I believe that the reason the increase [of teacher efficacy] is so high is that I learned so many concrete strategies about student engagement and have been able to apply them into my instruction throughout my learning. – Female, middle school teacher with 1 year of teaching experience

Another emerging theme, frame of reference change, is characterized as teachers’ adjustment of their own judgment or evaluation system, which seems to be associated with experience and knowledge gain. For their teacher efficacy score change, many participants believed that it was due to the fact that their awareness of learning and
teaching has changed over time. It is noteworthy that this frame of reference change was applied to both teacher efficacy increase and decrease. Below is an example self-analysis comment:

My scores went up quite a bit. I believe maybe on the first time around I scored myself lower because I was unsure. After learning about all the instructional strategies, I see so many things. I actually do apply some in my own classroom. I believe this made me feel more confident in those areas. – Male, elementary school teacher with 7 year of teaching experience

Interestingly, a similar self-analysis of efficacy change was also made from participants to interpret their either same or decreased efficacy. Below are example self-analysis comments:

After looking at my scores from the first week, all my scores have gone down. Maybe I was scoring myself higher than I am or maybe my frame of mind is different… – Female, elementary school teacher with 4 year of teaching experience

I scored 70 points originally and only 64 points at the end of my five-week learning. I am not sure what factors contributed to the decrease but my scores were lower in each area. I think I was over confident and not truly understanding all that was involved the first week of my learning… Usually the more you learn about a concept, the more you realize your deficiencies and I guess this is what happened. – Female, elementary school teacher with 20 year of teaching experience

Finally, the third emerging theme, learned helpless, refers to teachers’ repeated unsuccessful or negative experience that inversely affects their teacher efficacy. Many participants said that their newly acquired pedagogical knowledge is important. However, although they believed that their teacher efficacy is affected by their capability and skills from the knowledge base, there are other external factors that also influence their efficacy, such as curriculum guidelines, student aptitudes, socio-economic status around the school, etc. Participants especially seemed to be frustrated with these exterior factors because they felt that they had no control over such factors. Below are example self-analysis comments under this theme:

… I find it odd that the questionnaire indicates that Student Engagement is my weakest area. I assumed that with the instructional strengths I portray, my students’ levels of engagement would have been high. In the district I teach, my hands are somewhat tied in regards to curriculum. This may contribute to my students’ level of engagement to some degree. – Female, elementary school teacher with 13 year of teaching experience

I believe my scores changed very little because I have been a teacher for seven years to this point. If I were a new teacher, I believe the scores would have changed tremendously… All these articles put all the pressure on teachers. There is only so much a teacher can do. – Male, high school teacher with 7 year of teaching experience.
Discussion

The current investigation is part of a larger study of teacher efficacy and the effects of professional development programs for teachers and school educators. With the growing number of online continuing education programs, there is a dire need to examine how teacher efficacy develops and evolves with such programs. In particular, the existing literature on teacher efficacy looked at teachers’ experience as a whole without dissecting it. In other words, an examination of the relationship between teacher efficacy and the degree to which teachers are involved with their professional development is of interest because even though experience is vital, one can become an experienced non-expert regardless of the years of experience (Bereiter & Scardamalia, 1993). Thus, the main focus of this study was to examine teacher efficacy change through an online professional development, and to identify teachers’ attributions of their increased or decreased sense of self-efficacy.

The current research findings have shown that teachers’ professional development effort does have a positive effect on teacher efficacy. In addition, the descriptive self-analyses of teacher efficacy in this study have shown that gaining new knowledge was generally positively related to teacher efficacy. These findings are aligned with a recent empirical study with mathematics teachers (Ross & Bruce, 2007), even though professional development delivery modality was different from this study. The positive effect of professional development on teacher efficacy is not surprising in that strong teacher training programs are known to be positively associated with teacher efficacy (Kazem-pour & Sadler, 2015; Tuchman & Isaacs, 2011).

One of the notable findings of this study was the frame of reference change through professional development experiences. Participants said that it could either positively or negatively affect their teacher efficacy. For instance, after gaining more knowledge about contents and instructional strategies, they found themselves either overrated themselves with overconfidence or underrated with the feeling of uncertainty. Consistent with Bandura’s (1997)’s view, the findings in this study showed overall positive teacher efficacy change with an additional training that is designed to aid teaching experience. A closer look at individual teacher’s years of teaching experience, however, did not show any meaningful teacher efficacy change. This finding is consistent with some previous studies (Brousseau, Book, & Byers, 1988; Ghaith & Yaghi, 1997; Green-Wood, Olejnik, & Parkay, 1990; Guskey, 1987; Klassen & Chiu, 2010; Wolters & Daugherty, 2007).

Conclusion

As UNESCO (2005) addressed in its decennial report called, guidelines and recommendations for reorienting teacher education to address sustainability, education is at the center of creating a more sustainable future. Accordingly, UNESCO placed an emphasis on teacher education, which is a driving force for sustainability in its broadest sense because teachers are in the place to shape better educated future generations. The scholarly effort of supporting education for sustainable development through teacher education programs has been active (e.g., McKeown, 2014). Among many principles and practices for teachers, Nolet (2015) claimed that critical thinking and metacognition are critical because teaching for sustainability places an emphasis on problem solving.
through cognitive processes rather than specific content. Therefore, reflecting and carefully examining one’s own teacher efficacy is essential, especially in the global context for sustainability (Gunzelmann, 2013).

The current study extends previous research by examining professional development effects on teacher efficacy along with their self-analysis of efficacy change. The scholarly significance of the current study lies in its timeliness examination in this line of study because little attention has been given to teacher professional development especially in an online setting. Moreover, the findings of this study provide evidence of teachers’ self-reflection on their efficacy change. The results combined with further research could perhaps provide a fuller understanding of how teacher efficacy develops and evolves. This research will help better understand how teachers grow as professionals, which will then enable us to develop innovative forms of teaching and learning that can address students from diverse backgrounds, including learners with academically and economically disadvantaged learners.

In order to promote education for sustainable development, it is essential to periodically conduct empirical studies on teachers and teacher education programs in this rapidly changing environment. Perhaps, future studies can examine further regarding teacher efficacy and its change in an online learning environment with various professional learning methods. For instance, collaboration and mentoring has been reported to be effective in teacher education (Sachs, Fisher, & Cannon, 2011), but its effect has not been investigated in an online environment.

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Educational Action Research to Achieve the Essential Competencies of the Future

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Abstract
This article analyses the conformity of the educational action research (EAR) process for the improvement of selected competencies that will be necessary in the near future for each active and responsible person. The most requested competencies in the near and midterm future are determined in accordance with near future structural requirements of labour demand, determined by international organizations.

The contribution is based upon the outcomes of the action research carried out in the internet environment, by Bachelor students majoring in information technologies at Riga Technical University, Latvia. Working in groups, supplemented each other’s ideas, developing living theories.

The content analysis of the students’ supplementary submissions and living theories was carried out to identify the features indicating the development of student actions towards the improvement of the most necessary competencies in the near future.

To accomplish the objective of action research, at first, the most requested competencies in the near and midterm future were determined. Then the changes of the features, mentioned during the three action research cycles were identified. Finally, the most important features of the students’ actions indicating the development of two of key competencies, namely, Novel and adaptive thinking and Design Mindset, were identified. Perfection of referred competencies is viewed as the substantial part of education for sustainable development (ESD). The conclusions were drawn about the development of students’ competencies according to the future needs identified during the action research process in the internet.

Keywords: e-learning, action research, competencies, collaborative learning, adaptive thinking

Introduction
The theoretical foundation of the study is the education philosophy of the American philosopher, psychologist and education reformer John Dewey (Dewey, 1916) which foreshadowed action research. The EAR (educational action research) is based on the theoretical studies of K. Lewin (Lewin, 1946), B. Dick (Dick, 2009) and other followers of J. Dewey. A significant component of the theoretical foundation is the theoretical...
studies of B. Glaser and A. Strauss – the developers of the grounded theory and methodology based on data and differ from the traditional research methods (Glaser, 1967). J. Whitehead (Whitehead, 2009) suggested that the grounded theory should be included into action research and developed the idea of the grounded theory into a living theory rooted in phenomenology – in subjective perception, experience and reaction. The grounded theories and the living theories are practical theories, the possibilities of including them into action research for improving the existing situation have been theoretically investigated by Kevin Barge (Barge, 2008). In the framework of sustainability, outcomes of the research were compared with research by I. Salīte (I. Salīte, 2008; I. Salīte, Mičule, I., Kravale, M., Iliško, Dz., Stakle, A., 2007) and Dz. Iliško (Iliško, 2007) who investigated action research in education exhibiting a holistic approach and emphasizing educational situation in Latvia. Educational action research is related to the novel and adaptive thinking of its participants. Its various manifestations are essential for the present study.

The study has also used A. Kapenieks’ research on the importance of information and communication technologies in the development of the knowledge society paradigm (Kapenieks, 2009) has been also made use of. For the analysis of the cognitive processes, B. Bloom’s (Bloom, 1956) taxonomies have been applied and compared with the theoretical studies of five-step model of collaborative e-learning performed by G. Salmon (Salmon, 2010). Grundspeņķis’ and A. Anohina’s research on intelligent, ICT-based learning systems (Grundspeņķis, 2005), as well as I. Slaidiņš’ and G. Štāle’s research on e-learning solutions in education (Štāle, 2005) have been also employed.

The e-learning environment design and the interface design have been elaborated on the basis of R. Clark’s and R Mayer’s theories of the architecture of an e-learning environment and a user – friendly interface design enhancing the cognitive processes (Chapnick, 2005; Clark & Mayer, 2011). E-learning environment is of high importance in the study and it is designed to favour the development of creative thinking skills and constitutes the most significant aspects of learning and at the same time determines efficient learning environment. Such learning environment aims towards sustainable development, complementing awareness of learning goals, personal meaningfulness and networking to achieve the core process of the direction – “action and reflection” (Grišāne, 2008). In the study the author has identified influence of students’ EAR to the development of selected competencies that will be necessary in the near future and midterm future for competitiveness in the labour market.

The goal of the study is identification of the mutual student influence between first-year Bachelor syudents majoring in information technologies, who acuire part of the study course Business Planning for the Open Market by EAR in internet environment. The study analyses the group work that promotes acquisition of future competences – novel and adaptive thinking and design mindset. The author has identified design mindset evaluation parameters and assessed performance of students according to competence. Students’ mutual influence in groups has been expected and author evaluated it as well.

Competencies for the Future

Educational systems of many countries nowadays encounter new challenges – to discover the successful solutions for the creation of preconditions of the knowledge society. In European understandings: What Europeans? What source? competencies
are defined as a combination of knowledge, skills and attitudes appropriate to the context. Competencies are closely linked to the person’s ability to make decisions in the context and framework of knowledge and skills. Knowledge as the main value is the keystone of the new paradigm and identification, source? The identification, development and evaluation of basic competencies are the most substantial task of educational systems in the new educational paradigm. The search for such solutions has also generated wide discussion on a political level as well. Research of the European Commission demonstrates that the service oriented knowledge intensive economy is replacing the traditional industrial and agricultural economy (Cedefop, 2008). Research-based forecast shows a substantial increase of the workforce in occupations requiring innovation-oriented competencies, appropriate to levels 5 and 6 of the International Standard Classification of Education (ISCED) (UNESCO, 2011) and levels 6, 7 and 8 in the Framework for Qualifications of the European Higher Education (EQF) (EC, 2008a). In the near future structural polarization of labour demand will take place, and the demand for workplaces will increase on the highest and lowest levels of and demand for workplaces on the highest and lowest levels EQF.

Continuous updating of competencies corresponds to the “learning society” model as a significant component of education for sustainable development (ESD). Awareness of importance to develop learners’ competencies in order to meet present and future intellectual and professional needs promotes efforts to find new paths for a better future as a substantial component of ESD (UNESCO, 2011). Competencies for future are interconnected and important to most of the key drivers of the development of the labour landscape (Davies, 2011), encompassing values and attitudional changes, promoting values and ethics through education at higher levels to make an impact on people’s lifestyles, behaviours, helping to build sustainable future (Kostuolas - Makrakis, 2010)

Frequently employers reproach universities for their inability to provide students with the necessary skills and knowledge required in the workplace. Such reprehension is caused by the inability of graduates to promptly acquire knowledge and the skills to master new technologies necessary for modern industries.

Policymakers are trying to define knowledge and skills, as a substantial part of competencies, and promote the involvement of individuals in the labour market. Above all, such efforts are increasing during crises, when competencies are becoming the cornerstones of economic growth (Ferrari, 2009). Some of defined skills are relevant to jobs and occupations rather than the current ones. These skills may also have been acquired through non-work or leisure activities or through participation in education or training (ELGPN, 2014). These are transversal skills, – accepted as most suitable for new workplaces. Such skills are problem solving, self-management and analytical skills (EC, 2008). In the perspective of life-long learning European Commission has identified eight key competencies to develop for personal fulfilment, development, social inclusion, active involvement and employment. These competences are transversal and include: communication skills in native language; communication skills in foreign languages; mathematical competence and basic competences in science and technology; digital competence; social and civic competences; sense of initiative and entrepreneurship; cultural awareness and expression; learning to learn. (EC, 2008).

Within the framework of ATC21S project managed by the University of Melnbourn, 250 researchers from 60 institutions conducted research on the most required transversal skills in the 21st century: ways of thinking – creativity, critical thinking, problem-solving,
decision-making, metacognition; ways of working – communication and collaboration, tools for working – information literacy, ICT literacy, ways of living in the world – citizenship locally and globally, life and career, personal and social responsibility (Binkley, 2012).

Within the framework of the research conducted by the stakeholders of the Institute for the Future (IFTF), the Delphi technique was used to analyse the key drivers that would reshape the landscape of work and to identify the key skills needed for next 10 years. The drivers are as follows:

1. Extreme longevity, changing principles of career and education,
2. Rise of smart machines and systems – workplace automation replaces human workers in repetitive works,
3. Computational world that makes the world a programmable system,
4. New media ecology, communication tools requiring literacies beyond text,
5. Superstructured organizations as new social technologies, driving new forms of production and value creation,
6. Global interconnectivity and an increasing globally connected world putting adaptability and diversity at the center of organizational operations. (Davies, 2011).

Particular skills will be necessary to mastered in order to support each driver. Table 1 demonstrates skills of the next decade and the appropriate key driver, reshaping demand for works, according to IFTF research.

Table 1
Competences and Key Drivers of Development (Davies, 2011)

<table>
<thead>
<tr>
<th>#</th>
<th>Skill</th>
<th>Explanation</th>
<th>Supported key driver</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sense-making</td>
<td>ability to determine the deeper meaning or significance of what is being expressed</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Social intelligence</td>
<td>ability to connect to others in a deep and direct way, to sense and stimulate reactions and desired interactions</td>
<td>2, 6</td>
</tr>
<tr>
<td>3</td>
<td>Novel and adaptive thinking</td>
<td>proficiency at thinking and coming up with solutions and responses beyond that which is rote or rule-based</td>
<td>2, 6</td>
</tr>
<tr>
<td>4</td>
<td>Cross-cultural competence</td>
<td>ability to operate in different cultural settings</td>
<td>5, 6</td>
</tr>
<tr>
<td>5</td>
<td>Computational thinking</td>
<td>ability to translate vast amounts of data into abstract concepts and to understand data-based reasoning</td>
<td>3, 4</td>
</tr>
<tr>
<td>6</td>
<td>New media literacy</td>
<td>ability to critically assess and develop content that uses new media forms, and to leverage these media for persuasive communication</td>
<td>4, 5</td>
</tr>
<tr>
<td>7</td>
<td>Transdisciplinarity</td>
<td>ability to understand concepts across multiple disciplines</td>
<td>1, 3</td>
</tr>
<tr>
<td>8</td>
<td>Design mindset</td>
<td>ability to represent and develop tasks and work processes for desired outcomes</td>
<td>3, 5</td>
</tr>
</tbody>
</table>

Sequel to Table 1 see on the next page.
Sequel to Table 1.

<table>
<thead>
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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>9</td>
<td></td>
<td>Cognitive load management ability to discriminate and filter information for importance, and to understand how to maximize cognitive functioning using a variety of tools and techniques</td>
<td>3, 4, 5</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Virtual collaboration ability to work productively, drive engagement, and demonstrate presence as a member of a virtual team</td>
<td>5, 6</td>
</tr>
</tbody>
</table>

Studies of different authors and organizations (Binkley, 2012; Davis, 1999; EC, 2008; Ferrari, 2009) demonstrate the growing importance of transversal competencies necessary to most of future occupations and jobs that may have been acquired through non-work or leisure activities or through participation in education or training. The number of professions is growing, at the same time numbers of required employees is decreasing. Most people can acquire specific professional competencies “by doing” at work. For most of them could be acquired on workplace “by doing”. Each competence of the above mentioned studies cannot be viewed in isolation from other competencies. Holistic perspective means that all mentioned competencies are of importance for personal fulfilment, development, social inclusion, active involvement and employment. Competencies are also interconnected. Thus, novel and adaptive thinking, as a construct of creativity, cannot be realized without other skills. Design mindset and virtual collaboration are of highest importance. These competencies will have highest importance in future occupations. Holistic view allows viewing competences as a whole, but it does not mean impossibility to evaluate each competence apart. Novel and adaptive thinking and design mindset, closely linked to creativity author found as very substantial.

**Characteristic Parameters of Competencies**

**Assessment of Learning Outcomes**

This chapter describes assessment of learning outcomes, action research process, competence assessment parameters and way of evaluation. Parameters for evaluation of creativity, as a substantial component of creativity, are described. Correlations of creativity parameters with final assessment of the study course *Business Planning for the Open Market* are demonstrated and analysed.

**Action Research in the Study Course**

E-learning has been used for several years within the study course *Business Planning for the Open Market* at Riga Technical University. Project-based learning is used for knowledge acquisition. Each student must create and justify the balance sheet within the framework of business planning for his/her own enterprise for a period of three years. The students’ realised three action research cycles and constructed personal theory, as a tool for the creation of personal knowledge.

The e-learning environment of the course is incorporated in the portal of Riga Technical University portal, designed by the open source MOODLE software. It easily interoperates with other resources. Forms for action research in the group are designed in the Google Disc facilities. The students perform three learning cycles and create three living theories. They work in groups of five students. The students evaluate each other’s
plan in accordance with the basic requirements for the content of the plan. Each of the
learning cycles starts with the identification of the problem to be solved. The next step
is the construction of the student’s personal living theory, which is communicated to
the group (network). This theory will be updated during the following learning cycles.
The construction of the living theory is based on the rethinking of personal beliefs,
experiences and interests. Communication with other individuals introduces different
experiences in the theory, leading to discourse. At the end of each learning cycle, living
theory is analysed and corrected, if necessary. The teachers’/consultants’ role is substantial
during the correction period. The e-learning environment provides the function of
stimulus. It influences the progress of ongoing action and provides the opportunity for
effective monitoring of reactions (reflections). The e-learning environment becomes a
valuable functional component for action research as a tool for organizing the con-
struction of living theories.

During one semester, 214 RTU Bachelor students from 10 academic groups during
one semester participated in action research. 177 students performed 2 cycles of creating
the living theory, and 148 students participated in all the three cycles. In each cycle,
they were divided into groups of 4 to 6 students according to the order of filling in the
MS Excel sheet. Each group worked on a common document and each student created
the living theory in collaboration with two group members. Upon completing the study
course, 100 students voluntarily participated in a poll on the course.

Assessment of Creative Thinking

Evaluation of creativity. Assessment of student’s creativity and novella and adaptive
thinking as a construct of creativity during learning process gives an opportunity to
improve teaching and learning quality. Contemporary knowledge assessment methods,
however, do not take into account the creativity of the learner (NACCCE, 1999).

Although the concept of creativity is widespread in educational literature, but rarely
it is defined (Ferrari, 2009). More common definition of creativity – ability to create of
valuable novelty (Cohen, 1999). Guilford (Guilford, 1967) expands definition in frame-
work of divergent thinking: divergent thinking creates new ideas from existing informa-
tion, emphasizing guarantees of outcome. The above mentioned definition includes
three approaches: creativity as the charastiristic of personality (Guilford, 1967; Koestler,
1964; Sternberg, 1999), creativity as process (Amabile, 1998; Oldham, G., 1996), creati-
vity as outcome of crative activity (Amabile, 1998; Bebre, 2003; Lefrançois, 2000).
Creativity plays an important role according to the constructivist approach: creativity
is construction of meaningful knowledge (Runco, 2003). Craft (Craft, 2005) considers
creativity as knowledge creation form in learner centered pedagogical discourse with
active role of knowledge creation and with auditorium accepted experience, judgements
and ideas (Williamson, 2009). Such approach is the basis of EAR study.

According to the constructivist approach, comprehension is developed by reflection
and searches for valuables are the way to create links between previous and newly
created knowledge. Comprehension is a form of creation of sense and it is creativity as
well (Craft, 2005).

The objectives to be achieved by educational action research play an important
role in assessment (Beghetto, 2005; Simplicio, 2000). The two types of objectives are
performance and mastery. To assess performance, error prevention is emphasized. The
objective here is – to be better than others. To assess mastery, perfection and improvement of skills of individual are emphasized, focusing on the learning process, rather than graduation. This system of assessment provides feedback on students’ growth, promotes encouragement, motivation, interests and the pleasure of learning (Beghetto, 2005). In the study course Business Planning for the Open Market evaluated both – performance and mastery have been evaluated.

Substantial part of the study involves the assessment of creative actions of Bachelor level students during EAR. Three forms of assessment of novel and adaptive thinking as the construct of creative actions were adopted – diagnostic assessment, formative assessment and summative assessment (Kapenieks, 2010a; Kapenieks & Salite, 2012):

**Diagnostic assessment** demonstrates students’ ability as a basis for planning a solution (Russ, 2003). The author of the study takes into account how students adapt pillars of creativity – novelty and value.

**Formative assessment** gathers evidence about students’ progress, evaluating novel thinking and adaptive thinking and ensuring that creativity has explicit definition (Beghetto, 2005) and is evaluated by monitoring of progress in each cycle of EAR (Black, 2004). In the study author identified students’ progress by content analysis of the students’ texts.

**Summative assessment** allows the evaluation of achievements of each student at the end of the course. It was realized by evaluating novel solutions of problems at the final exams.

The most important advantage of such an assessment system is the possibility to focus on students’ creative skills. It also allows evaluating large amounts of information, because most of the work is performed by students, who assess their groupmates’ work and add their own opinion of the common work, tutorials, additions and corrections of students’ work. The process of evaluation becomes exciting, decreasing stress, promoting imagination and creativity of students.

Encouraging factors are uncommon technical solutions and unusual tasks as well (Ferrari 2009). Decrease of social competition is important benefit. Students do not need to compete with each other, as they benefit from the efforts to improve their performance by cooperation.

**Characteristic Parameters of Creative Thinking**

According to the goals of the research, parameters for indication of the novel and adaptive thinking competence have been defined. These parameters are necessary for research of correlations between bachelor student expressions of creativity and final assessment in the course. Parameters of creativity are used to research students’ mutual influence to express novel ideas in the group during educational action research in internet.

To evaluate learning efficiency and creativity, the following parameters were used as a result of content analysis of the students’ opinions and comments:

- **Discourse** – the number of novel ideas expressed in complementing the peer performance and creating the living theory. The author attributes novel and adaptive thinking to the discourse since the result is something new which in the given case are the new ideas expressed by the students. In the study term “discourse” is used as a name of a parameter, but there is no contradiction
with the philosophical term. Content analysis is used as a qualitative method –
deconstructive reading of texts (Olson, 1995). The discourse in which the
students complement their group mates’ ideas corresponds to the criteria of
novel thinking since it is created by thinking of “what might happen” and not
of what has already happened. This parameter characterizes novelty on one
hand, and ability to adopt others’ novel ideas on other hand.

- **The number of discursive ideas** in the living theory reflects the number of the
  student novel ideas and the number of his group mates’ complementary ideas.
The process of evaluation becomes exciting, decreasing stress, promoting
imagination and creativity of students.
- **Assessments** – the final assessment for acquisition of the study course.
  In the study, the discourse is the main parameter, characterizing Bachelor students’
  creativity, is discourse.

**Characteristic Parameters of Design Mindset**

Design mindset competence reflects ability of constructive thinking of individuals.
Evaluations include skills to expose their thinking and action process to the pursued
objectives. In the study, constructive mindset in the study is defined as ability to represent
and develop tasks and work processes for desired outcomes (Davies, 2011). The author
of the study developed the following characteristic parameters of design mindset:

- Awareness of the objectives,
- Compliance of tasks to be carried out with the objectives,
- Conformity of reachable performance indicators with the objectives.

After completion of the course, the author of the study has evaluated parameters
for assessment of design mindset, analysing content of a business idea, content of
additions to the groupmates’ business ideas and content of living theory, as well as
assessed the following factors:

- Clear definition of problem to solve,
- Clear definition of goals to meet,
- Clear description of solution as intermediate targets,
- Appropriate structure of explanation,
- Clarity of explanation.

Each factor was evaluated as zero or one point. Parameter for evaluation of the
design mindset of each student during action research in internet environment is sum of
mentioned values. Minimum sum is zero, maximum – five points.

**Research**

**Design of Research**

The goal of the study is identification of the mutual student influence among
students, working in the group, expressing future competencies – novel and adaptive
thinking and design mindset. The author evaluated expression of novel and adaptive
thinking during EAR and design mindset evaluation parameters and assessed performance
of students in this competence. Students’ mutual influence in groups was expected, and
the author evaluated that as well.
Evaluation of Creativity

One of the objectives of the study is to find out how the students’ creative performance in action research is related to the quality of course acquisition. Figure 3 reflects the average values of the students’ parameters of novel and adaptive thinking - discourse in relation to their final scores for course acquisition according to a 10-point system. The chart shows the students’ creativity in developing the living theory in relation to the quality of course acquisition. When the students’ performance improved, their value of the novel and adaptive thinking increased. However, the novel and adaptive thinking of the students whose performance was outstanding (assessed by 10 points) was slightly lower than the creativity of the students who had scored 9 or 8 points. Perfect performance does not always mean highest creativity level (Kapenieks, 2011b)

![Figure 3](image1)

"Figure 3. Average values of the students’ discourse in relation to their final scores for course acquisition according to a 10-point system. (J. Kapenieks, 2011b)"

The author concludes that active involvement in group work in an e-learning environment is rather homogeneous, groups do not produce leaders. Homogeneity is reflected also in the chart offered in Figure 4, which shows that the number of the students’ discursive ideas in the living theory is related to the sequence of their involvement in group work.

![Figure 4](image2)

"Figure 4. Students’ novel and adaptive thinking depending on the sequence of their involvement in group work. (J. Kapenieks, 2011b)"
Figure 4 shows that on the average the students’ discursive ideas do not depend much on the sequence of the students’ involvement in group work. It indicates their independence which is rooted in their motivation. It was predicted that those students who get involved in group work rather late would be influenced by the ideas expressed by the more active students. The analysis of the content of texts written by the students showed that they did not have the tendency to repeat the ideas expressed by their group mates but they often either approved of them or rejected them. There were no distinct leaders in the groups, each group member’s work was individual and at the same time it was connected with the performance of other group members. However, out of all the target groups nine students (12%) did not participate in the discussions.

Some changes in the students’ personal beliefs and interests were revealed by the research of the dynamics of students’ interest in acquiring the whole business course, in which the action research method was applied.

**Evaluation of Design Mindset**

One of goals of the study is to evaluate student’s design mindset, as one of most significant competence, when expressing new ideas during educational action research. Research allowed assessing students’ mutual influence in the group. Content and form of students’ business ideas, additions and living theories was analysed and design mindset evaluated, as described above.

The study assessed students’ design mindset in accordance with the time period of involvement in the EAR. Design mindset was evaluated for each of 100 students, divided in 20 groups. Then average parameter, characterizing design mindset, was calculated for each group.

Figure 5 shows the average value of the parameter, characterizing design mindset of students according to the sequence of creating groups, showing the sequence of involvement of students in the EAR.

![Figure 5. Average assessments of design mindset in groups in relation to the sequence of the student’s involvement in work](image-url)
Figure 5 demonstrates only a very small relationship between students’ activity, characterized by the sequence of involvement, and average design mindset of individuals. Parameters of design mindset are slightly smaller for students, involved in EAR at the very beginning and for the late students.

The study showed students’ demonstrated design mindset in relation to the sequence of involvement in groupwork (Figure 6).

Correlation analysis shows higher average value of design mindset of students, who were involved in groupwork later – the third, fourth or the last. Their explanation was better structured in comparison with the first and second students. It was tested that distribution of students’ design mindset values in each group of sequence (first, second, third, fourth, fifth) corresponds to the distribution that allows using arithmetic mean to characterize the assessment of design mindset of students from the group with sufficient credibility. It shows noteworthy influence of the first student to the second student (Pearson Correlation $r=0.47; \text{sig}=0.037$, correlation is significant at the 0.05 level), dramatically decreasing for third, fourth and fifth student in accordance to the sequence of involvement in group work (respectively $r=0.24$, $\text{sig}=0.31$; $r=0.16$, $\text{sig}=0.49$; $r=0.045$, $\text{sig}=0.85$).

There are no significant correlations between assessment of the second and third, second and fourth, second and fifth student. It allows one to conclude that students are substantially influenced by previous groupmates in the terms of design mindset. Working in Google Disc environment, the performance of the previous student is visible to each subsequent student.

**Conclusions and Discussion**

The study shows some developments of students’ competencies during the three-cycle action research collaborating in internet environment. Students develop reflections, adding supplementary ideas to their groupmates’ business ideas and creating their own living theories as the final result. During the action research process students’ interests became more oriented to creative acting, more oriented to leadership and interests became
There is reason to believe that inclusion of educational action research via the internet has a positive influence to the previously mentioned developments in the context of general learning activities of the first year bachelor level students.

The study results have demonstrated homogeneity of group work via the internet, motivating each student to express his/her own novel and adaptive ideas. There was not identified strong leader formation in collaborative groups in the internet, as it typically happens in the face-to-face groupwork. The motivating factor for so high independency in groupwork is transparency of each student’s work and additions to the groupmates’ ideas. Transparency promotes each member of the group to be active in generating new ideas and proposing substantial improvements.

The study has demonstrated the influence between members of group in the terms of structuring of expressed ideas, characterizing students’ design mindset. It shows substantial influence from written texts that are visible to each member of group. We can conclude that cooperative EAR is an effective tool to develop the participants’ individual design mindset as one of key competencies for future.

Within the framework of the study, a new method has been elaborated which allows quantitative assessment of the students’ novel and adaptive thinking and design mindset. Action research in an e-learning environment helps the students not only to create knowledge but also to develop their views and interests in a way that enhances their novel and adaptive thinking. During collaboration in the group in internet, students influence each other to express their ideas in the structured way. This tendency corresponds to a system of competencies suitable for most required professions in near future.

The application of new information and communication technologies in EAR in an e-learning environment create opportunities for sustainable development of an individual:

- the information and communication technologies give the possibility to develop the competencies to construct personalised knowledge,
- technological solutions oriented toward the user’s needs enable him/her to build personalised experience by way of reflection,
- the mobility of the technologies helps to construct contextual knowledge relevant to the given situation,
- the accessibility and networking of the technologies provide the opportunity to generate knowledge as a discourse collaborating in a discussion.

Educational action research helps to improve the students’ study process as they generate knowledge themselves by way of cognition and reflection. The generation of knowledge is the result of prototypical thinking. It is based on direct and indirect experience and is open to new experience. The new information and communication technologies provide the opportunity to perform EAR in the form of e-learning. The elaborated research method allows to quantitatively characterising processes related to elusive knowledge which are difficult to express in words. Earlier it was characterised intuitively. EAR in an e-learning environment shows that:

- students are motivated to participate in EAR within the framework of their study course. They are not shy to voice innovative ideas creating a discourse, constructing and acquiring new knowledge. They learn to accept and access other students’ ideas, incorporating them in their own statements,
- the use of this method increases the students’ interest in the study and improves the acquisition results,
Educational Action Research to Achieve the Essential Competencies of the Future

- EAR supports development of students’ novel and adaptive thinking competence as substantial component of future competencies, and it helps to improve the course acquisition results,
- the most creative students in EAR have better results in the study courses acquisition, except those students whose final results are the highest – they are slightly less creative in EAR.

It has been proven that in the course acquisition the students whose academic achievement is the highest are not those who create the largest number of new ideas. However, the deficiencies of the knowledge assessment system have to be taken into account: the highest mark is usually given for perfect acquisition of knowledge instead of the skill to apply it in novel and adaptive way.

In an e-learning environment the EAR makes the traditional e-learning oriented towards problem solving much more creative. Such a learning environment is designed to support research activities and corresponds to the dimensions emphasized by O. Grišāne (Grišāne, 2008): (1) students’ individual interests – initial selection of personally significant contexts; (2) ability of university to design such environment for coordination students’ and lecturers research work; (3) influence of learning environment to development of students’ subjective inquiry toward the aim of sustainable development. Novel and adaptive thinking competence can be characterised by sustainability in contrast to short-term problem solving by adaptation. This feature of EAR in an e-learning environment can be used to support life-long learning and teachers’ education for sustainable development.

Cooperation is an essential component of EAR. Group work in an e-learning environment has several nuances that differentiate it from the group work of full-time students, in which usually one or a few students dominate.
- It is easier to supervise students’ group work in an e-learning environment during EAR. It is comparatively easy to assess each student’s performance in group work.
- Students’ performance and creativity in the EAR group does not depend on the sequence of their involvement in group work. Students who join the group as the last members manage to do only little less in comparison with others.
- Intensive work, when the students do not have to wait long for the reaction of their groupmates, stimulates their activity. The supervision and the involvement of the teacher and the e-learning consultant stimulate the students’ activity. However, direct involvement and interference into the students’ collaboration is not recommended in the EAR.

There was identified both approaches to the developing novel and adaptive ideas during EAR, mentioned by Salīte (Salīte, 2008): (1) dilemma approach, suggesting ready – made trials and focusing to proffered solutions – typical for students’ additions to explanations of groupmates’ business idea (in some cases it is too simplified and shallow); (2) non-oppositional means, distinguishing factors restrictive for development – typical for explanations of personal business idea and living theory.

Mentioned approaches determines some limitations for students’ EAR in the Internet environment, designed on the Google Disc applications. Difficulties are determined by inadequacy of the environment to organize in-depth research on a specific topic. Another limitation, identified by the author, are restrictions, determined by the differences of students’ ICT skills. Study was conducted with information technologies
students with relatively homogenous ICT skills. The method can cause ICT use difficulties for some of students of humanities or social sciences.

During research the author identified some further implications of research. Important future directions are an in-depth study of users’ behaviour in the internet environment during EAR. Such study will allow to design learning environment more personal, adopting to the users’ needs. Analysis of users’ behaviour could help to improve teacher involvement in the EAR process in more reasoned way, strengthening motivation and improving quality of EAR. It will also allow design EAR for development of improvement of competencies in more focused way that will be necessary in the near future and middle-term future for competitiveness in the labour market and sustainable development.

Acknowledgement

Research was carried out within the project of European Regional Development Fund New user behavior interpretation algorithms a radical improving knowledge transfer in e-ecosystem (JAUZI).

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Autonomous Learning for English Acquisition in Blended e-Studies for Adults within the Context of Sustainable Development

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Abstract
Personality integration and self-realisation in the global economy and coevolution with multilingual cultural environment of sustainable learning society by means of technologies actualise the paradigm shift in science, and create the necessity for transdisciplinary research to resolve the problem of transformation of the system of values in the context of acquisition of languages. The research aims to create a holistic model of autonomous learning for English acquisition in blended environment of e-studies in the context of adult non-formal education. The research is done on the basis of the holistic paradigm of the science. Holistic methodology is used for investigation of the holistic system. The research resulted in creating the holistic model and working out the recommendations to facilitate of the transformation of the system of values of participants at the programmes of English acquisition of adult non-formal education. The results of the research are significant for developing the concept of autonomous learning.

Keywords: autonomous learning, autonomous English acquisition, pedagogical support, technological support, limit factors, ecoautonomy

Introduction
The article presents the results of the completed research on autonomous learning for English acquisition in blended e-studies for adults within the context of sustainable development. It is a holistic structurally divisible and functionally indivisible pedagogically facilitated learning process, organisation form, value and English learner’s learning approach in technologically supported learning environment with dual properties of transition and sustainability that promotes the development of learners’ experience and collaboration in the environment and interaction with it.

The research aims to create a holistic model of autonomous learning for English acquisition in blended environment of e-studies in the context of adult non-formal education. To reach the aim, it is necessary to answer the question: how does autonomous learning influence the transformation of the system of values and integration into the environment?

The hypothesis of the research is that the depth and the structure of the comprehension of the process of autonomous learning for English acquisition, which is used
for connecting the pedagogical and technological facilitation for developing an individual’s experience and competence, are important to create a holistic model of autonomous learning in English acquisition in blended environment of e-studies in the context of adult non-formal education.

The criteria suggested for argumentation of the hypothesis make a system of mutually connected values that includes relationships between participants of the learning process based on responsibility; English learning strategies describing an individual’s learning experience and competence; interaction in the environment – collaboration.

The Framework of the Research

The research is conducted on the basis of the holistic paradigm of the science. It supposes the system approach for the cognition of the complex world that substitutes its fragmental cognition. The development has been considered as increasing the complexity of interdependent phenomena and processes. The ontology of the holistic scientific research shows the evolution of the holistic approach from monism to parts of the system and their properties and to investigation of the whole and the properties of the whole where the whole is more than the sum of its parts. Being part of the system refers to its nature and does not mean a specific spatial or causal arrangement of the parts (Esfeld, 2004; 11).

The paradigm shift towards the general paradigm of sustainable development has actualised evolutional philosophy, the system approach and methodology of complex processes in the science. Sustainable development is connected with the holistic approach in educational research in Latvia (Salite 1998; Badjanova & Iliško, 2015). Its content aspect is a systemic approach where integral personality can be seen as a system itself (Wilber 2006; Badjanova 2013, 2014).

From a holistic approach, learning implies not only training skills, but also includes strategies of their use (Badjanova & Iliško, 2015). It means that autonomous language learning directed by teacher can also include strategies and techniques that learners could use to apply their learning competences. It enhances one’s self-direction for the development of learning experience.

Person’s environmental positioning develops from his/her social positioning and, like a biocentric positioning, is an indicator of a sustainable quality in a relationship (Gedžūne, 2015) between a person and the nature. The global context of society is ensured by technologies (Huckle, 1996). It creates the necessity of the person’s integration and self-realisation in multilingual cultural environment, but technologies create opportunities for the person’s inclusion in e-learning society (Vitoliņa, 2015).

It is clear that eco[logical] and eco[nomical] sustainability are two different kinds of global development of sustainability: sustainability in the time frame and sustainability in the frame of the system. The first is a deformative relationship of a person and the nature. I. Salite (2015) analyses the evolution of cooperative relations that are viewed both as a complex process and as a complex system of established relationships.

They develop from natural relationships to complex and linear co-evolutionary relations that deepen un-sustainability. Cooperative complex and non-linear relations developing sustainability are the mission of pedagogy where the highest humane ideals are not lost. Co-evolution and deeper understanding of interrelated orientation to sustainable development are the mission of pedagogy based on values (Salite, 2015).
The ecological paradigm in education is promoted by taking into account classroom and technologically supported learning environment that turns the attention of pedagogical practitioners towards changes and sustainability. Plurilingual approach instead of multilingual approach to the acquisition of foreign languages reflects the paradigm shift in language acquisition (EC [European Council], 2001) that aims at its practical use without an interpreter.

The theoretical framework of the study is based on the conception of evolutionary philosophy (Corning, 2005; Laszlo, 1991, 2009; Láslo, 2011); the approach of holistic philosophy (Quine, 1980); the convergence of humanistic and natural sciences following from the General System Theory (Bertalanffy von, 1968); ecophilosophy that supports the investigation of the depth of the whole (Naess, 1989); theory of Everything (Vilbers, 2011); change Theory, directions and forces (Fulans, 1999); the approach of autonomous learning (Роджерс, 2004) in language acquisition (Holec, 1981) and adult non-formal education (Knowles, 1975), and strategies of learning (Pintrich 2002; Oxford, 1990, 2003, 2011); transformative Learning Theory (Mezirow 1981, 2000; Brookfield, 2000) and facilitation of integrated learning (Esbjörn-Hargens, 2011). Developing the system approach and the complex methodology of scientific investigation (Laszlo & Krippner, 1998; Степин, 2003; Буданов, 2007) reaches the holistic approach and the investigation of the holistic systems (Esfeld, 2004) in the research.

The characteristic of adult learners is based on andragogy (Knowles, 1970); characteristics of orders of consciousness (Kegan, 1994) and integral model of consciousness (Vilbers, 2011). The statements of European Council (2001, 2006) about the acquisition of foreign languages, the thesis of the Theory of e-Learning (Nichols, 2003) are taken in account. The environmental approach considers learners’ relationships with the environment (Iriste & Katane, 2015).

Increasing the complexity of the phenomenon and the process of autonomous learning shows that radical autonomous learning with maximal individual’s responsibility for reaching the learning goal evolves into the dialog between a learner and facilitator in self-directed learning (Knowles, 1975). The relationship between the subject and self-developing poly-subjective environment (Лепский, 2014) is the next level of the development expressing self-determined learning in group in the learning environment of blended e-studies.

Interdependent phenomena with autonomous learning are a person’s identity that develops from Self-identity to We-identity (Tennant, 2006) and Eco-identity in the process of individualisation, socialisation and ecologisation. It follows that social ethics of learning is based on a person’s right to be taught, individual – on one’s own responsibility for reaching the learning goals (Vilbers, 2011), as well as environmental – on interactivity.

A person’s sticking to lower levels of the development means an environmental crisis (Vilbers, 2011) that shows the lack of the ability to integrate into the environment. The aim of holistic education is an integrated personality, but the inclusion into the system of lifelong education through programmes of adult non-formal education to a great extent continues the tradition of directed process of learning.

The design of the research presented in Figure 1 shows that a teacher’s directed English learning experience and competence are based on self-regulated learning (SRL) where a teacher is responsible for the achievement of the learning goal. Learning strategies and metastrategies promote the learner’s autonomy in the framework of SRD (Oxford,
2011; Wenden 1991; Flavell, 1979; Weinstein & Mayer, 1986; Pintrich 2002), but the use of technologies aims at supporting the acquisition of language skills.

In the beginning, the development of learning experience and competences was considered self-directed learning (SDL) facilitated by the facilitator in adult non-formal education (Knowles, 1975; Beitler, 2005) that would be implemented by autonomous language learning (Holec, 1981). Its implementation actualises the transformation of values by critical reflection on previous assumptions and beliefs (Mezirow, 1981). Nevertheless, it was concluded that the humanistic theory of autonomous learning (Роджерс, 2004; Маслоу, 2004; Knowles, 1970, 1975) in the context of learning of the foreign languages (Holec, 1981) had substituted the process of individuals’ learning by a teaching method (Deimante-Hartmane, 2013) where the autonomy had the meaning of inside learning.

Technological facilitation emphasizes self-controlled acquisition of language skills (Benson, 2013). It has been found out that technological approach defines autonomous English acquisition in blended e-studies as the linear transitional process from directed English learning in the classroom to self-organised learning (SOL) in the virtual learning environment (Bojāre, 2015 a, b). Another way is the sustainable holistic process of autonomous language acquisition in blended e-studies. It follows from the dual properties of a part (Vilbers, 2011), i.e. a part and the whole. Therefore the acquisition of language skills is facilitated in humanistic approach and technologically, but the learning process is reduced to teaching method of autonomous English acquisition in the learning environment of blended e-studies.

![Figure 1. Design of the research](image_url)

This process is developed to the renewed whole of autonomous learning in the context of learning of foreign languages – *Autonomous learning for English acquisition in blended e-studies* at the next stage of the research. Firstly, it is an English learner’s approach to the development of experience and competence of learning. Secondly, the
English learner’s cognitive participation in the learning process is supported by technologies by means of design of programmes, the opportunities of content delivery, design and its acquisition (Ortega & Sánchez-Villalón, 2006; Warschauer, 1996; Benson & Voller, 1997; Can, 2012; Benson, 2013). It promotes the development of individualised competence of language. Thirdly, communication supported by the internet and pedagogical facilitation is directed to promoting collaboration, for example, by organisation of learning societies and synchronous lessons.

Therefore, the development of learning environment supported by information and communication technologies (ICT) and the internet broadens the social level of self-directed learning facilitated by the facilitator to the environmental level of learning with an emphasis on self-determined learning in group that includes SDL and SRL (Rubene, 2009). Democratic relationships with the facilitator change to relationships with the democracy of the group. The transformation of the system of values is necessary for improving the quality of the choice (Mezirow, 1981).

The correlation of the systems is ensured by the environment. The impulse, given by the development of ICT and their use in education, is favoured for overcoming social restrictions and promoting the development of sustainable society on a global scale. The globalisation promotes the integration of a person in global economic environment and technologically supported interaction with social, cultural and natural environment where the acquisition of foreign languages plays an important role.

Methodology

The general method of transdisciplinary research is the content analysis of theoretical literature aimed at working out its scientific substantiation and modelling. The method of modelling is used for the visualisation of the function, the structure and the process of the holistic system. The system approach and the methodology of complex processes for using transdisciplinary and integrative connections in blended e-learning environment of adult non-formal education are used for the production of the holistic model. Holistic interpretation of the empirical results is done according to the top-down conceptualisation of holism, which begins with the whole and properties of the whole (Esfeld, 2004).

The research was performed in the period from 2009 to 2016. Its empirical method is compound quantitative and qualitative research followed by the action research. The empirical research includes:

- qualitative methods for collecting data – a narrative, a survey and SWOT analysis in the action research,
- methods of data analysis – qualitative (content analysis, encoding of obtained data, grouping and interpretation),
- quantitative methods of data analysis – quantitative statistical methods of primary data analysis and descriptive statistics (graphical visualisation of the data, determination of the frequency of the data, multidimensional statistical analysis – cluster analysis, methods of processing the data (varimax rotation method for factor analysis, calculation Cronbach Alpha coefficient for the calculation of the reliability of the distinguished factors, definition of the statistical significance of the clusters, creating the classification tree of the accepted decisions) by using SPSS 22.0 version of data processing software.
The qualitative method of non-structured narrative about the experience of acquisition of foreign languages is used in the qualitative part of the research. The quantitative data are collected using the questionnaire. SWOT (strengths, weaknesses, opportunities and threats) analysis, with weaknesses excluded in the factor analysis of the quantitative research, is used in the action research. The SWOT analysis of limit factors is essential in the process of changes; therefore, the complex investigation of all the factors is not necessary. They are expressed by empirically determined metacognitive strategies: the personal factor, the factor of participation, the factor of organisation, the factor of evaluation, the factor of knowledge, the factor of skills and the factor of development. The recommendations are worked out on the basis of the data analysis. The testing of the reliability of the research results is based on the triangulation of the methods.

The holistic interpretation of the empirical results (Figure 1) followed by using the complex methodology and creating a model based on humanistic approach (Bojāre, 2011). Its shortcoming was the insufficient attention to the technically supported learning environment. The use of synergetic methodology for inquiring of the process of changes (Буданов, 2007) in education (Marulevska, 2011) resulted in creating the synergetic model (Боjāre, 2015a, b). It allowed the researcher to recognise the role of technologically supported learning environment in the development of learners’ learning experience and competence, and showed two ways of facilitation of transformation of values.

The first way is connected with the linear transformation of values from directed English acquisition in classroom environment to its self-organised acquisition in the learning environment supported by the internet. The second way improves the quality of the choice through the transformation of the system of values in the sustainable learning process of e-studies.

Holistic approach refers to the ecological level of sustainable education where the system of values is changing. It allows for the use of the method of facilitation of the transformation of the system of values for developing an integrated English learner in the learning environment of blended e-studies with direct and virtual interaction. Holistic methodology is appropriate for the investigation of holistic systems (Esfeld, 2004). A holistic system is an open self-developing dynamic nonlinear creative and adaptive evolutionary system the nuclear of which consists of individual autonomy, the social level – of social autonomy and the ecological level – of ecological autonomy.

The ecological autonomy in subject-centred education is autonomy in the circumstances of interdependence. The ecological autonomous learning corresponds to the holistic level of education where the environment is taken into account. The self-actualisation for integration and self-realisation in the environment are the preconditions of cooperation for the development of eco-identity and personality because the main principles of evolutionary systems are to be and to become (Буданов, 2007).

Ecologisation broadens the concept of socialisation from a positive inclusion of a person in the society to the inclusion into the environment where the teacher’s facilitation, collaboration with the group and technological support are important. Coevolution with the environment provides the new level for the traditional approach of autonomous learning of foreign languages (Holec, 1981) and autonomous and self-directed learning (Роджерс, 2004; Knowles, 1970, 1975; Beitler, 2000, as quoted in Beitler, 2005). The conceptual knowledge oriented model for the comprehension of self-directed learning in e-studies created by L. Song and J. R. Hill (2007) is studied before the creation of the research model.
The holistic system of autonomous learning for the acquisition of English in blended e-studies in the context of adult non-formal education consists of the holistic systemic whole of an English learner, learning organisation and open learning environment. It is a part of the common system. The connection between them is substantiated by the opportunities of the internet supported learning environment that reaches the mezo-level of the environment of the Universe. The cosmos is chosen as the metaphor of the whole that is modelled by the geometrical fractal as the model of a living thing where a fractal creates the fractal alike to itself. The substantiation of fractals of life and scientific action is provided by A. Broks (Broks, 2000). Didactic fractal is developed from that by L. Jonâne (Jonâne, 2009).

The holistic model unites the individual’s learning dimension (strategies for acquisition of the English language), the social dimension of teaching (the organisational forms of learning process based on different levels of responsibility) and the transdimension of the facilitated learning environment (pedagogical and technological) of blended e-studies in the common system. The readiness of the participants of the learning process of autonomous learning for the acquisition of English in blended e-studies to change their attitude is the foundation of the transformation of the system of values that determines the development of the experience and competence in the acquisition of foreign languages.

The criteria of the readiness for autonomous learning in the process of autonomous learning for the acquisition of English in blended e-studies include the relationships between the participants of the learning process expressed by the organisational forms of the learning process based on different levels of responsibility (self-regulated, self-directed and self-determined learning); the peculiarities of the learner’s learning competence expressed by cognitive and metacognitive strategies; interaction and self-determination in the classroom, virtual environment and blended e-studies.

The research instrument includes three levels reflecting the research dimensions. The research model is shown in Figure 2. Visual division of circle fractal is the most appropriate visual form for the research model. The circles are substituted by the squares to simplify their representation by means of computer graphics. The steps of the pedagogical facilitation around the 7th metacognitive strategy and technological support around the 2nd one are shown at an enlarged scale.

The model shows the transformation of the system of values from self-regulated learning in the classroom to self-directed learning in open learning environment supported by the internet. Further, two scenarios are possible. The first is the linear development of experience and competence for acquiring English that is possible by the transition from learning in the closed classroom environment to self-organised action of learning the English language in the open virtual learning environment. The second is the change of the direction of nonlinear development to self-determined learning in the blended learning environment of e-studies supported by the internet.

Pedagogical facilitation is accessible for the facilitation of development and collaboration, and technological support is accessible for the process of content acquisition and development of language skills by promoting cognitive participation. The completion of English learners’ groups in non-formal education is assumed to be a sensitive moment for changes (a point of bifurcation). Synergy is the mechanism that ensures the functionality of all values of the holistic system.

Pedagogical facilitation of metacognitive strategy of development is implemented in six steps at English acquisition programmes of adult non-formal education. They are:
(1) investigation of learners, (2) the analysis and modelling of changes of the system of values, (3) dividing participants into groups, (4) the determination of the kind (pedagogical, technological, the internet) and direction of the facilitation (facilitation by using the metacognitive strategies, consultation for acquisition of the learning content and language skills, information about learning opportunities in the learning environment supported by technologies and the internet), (5) creating the environment for psychological facilitation in blended e-studies, (6) awareness of learning opportunities, comprehension and elimination of the threats that might prevent from using these opportunities.

Technological support includes the means of communication and content delivery provided by the internet, the design of the content and the means of its individualisation, the means of self-monitoring of acquisition of the content, the means of receiving additional materials, the means of knowledge systematisation, the means of training language skills and other means that promote the development of individualised competence of language and collaboration.

New values include the previous values and implement the aim of holistic education – an integrated learner of English. Such a person synthesizes the system of values of the social level, including self-regulated learning, and one’s own system of values, including self-directed learning, into the system of values of the environmental level, including self-determined learning.

![Figure 2](image.png)

*Figure 2. Process model for the facilitation of autonomous learning for the acquisition of English in blended-e-studies, where*

1–7 metacognitive strategies; 2 with a square – pedagogical support; 7 with a square – technological support.

1. metacognitive strategy of participation for reaching the learning goal;
The pedagogical function of investigation of the attitude of the participants of English programmes in adult non-formal education is their self-reflection about their own learning; the comprehension of learning possibilities for improving the quality of the choice and removing threats hampering the implementation of these opportunities. Ecological autonomy expresses collaboration in technologically supported environment with polysubjective social environment. Ecological autonomous learning is the right to use learning opportunities and the responsibility for developing learning experience and competence in blended e-studies for the integration in multilingual learning society.

Results of the Research and Discussion

The empirical part of the research consists of qualitative research, quantitative research and action research. The research basis and results are described in the article presenting the results of autonomous acquisition of English in blended e-studies by adults investigated as a process of transition from directed learning of English in the classroom to self-organised acquisition of English in virtual learning environment (Bojäre, 2015 a, b).

The design of the empirical research arises from the change of the conception of the research presenting autonomous learning for the acquisition of English in blended e-studies as the holistic process that gives the new perspective for the interpretation of the data obtained.

The qualitative research involved five participants, 210 respondents were involved in the quantitative research and different numbers of people participated in three cycles of the action research. The participants of the qualitative research are learners interested in the acquisition of English with rich experience of acquisition of other foreign languages.

Non-probability sampling of respondents was chosen for the quantitative research on the basis of the principle of accessibility. It consisted of volunteers who were ready to take part in the face-to-face research and the survey implemented by means of e-mails. Real participants of English acquisition programmes of adult non-formal education were invited to be the respondents of the research, but their number was insufficient for the research. After that teachers, librarians and parents of schoolchildren as potential participants of the programmes were involved.

The participants of the action research were chosen depending on the results of the quantitative research. Forty-six participants (N₁=46) were involved in the first cycle. They were the participants of English acquisition programmes of adult non-formal education. Thirty-two of them took part in the second cycle of the research (N₂=32), four facilitators (N₃=3) took part in the third cycle (Bojäre, 2015b).

Forty-six questionnaires of the first cycle and 35 working lists of SWOT analysis of the participants of English programmes and their facilitators were analysed. Out of them, 12 working lists of SWOT analysis of the second cycle and 3 individual and 2 pair work SWOT analyses of the third cycle were analysed according to the determined sensitive limit factors of English acquisition. Thus the results of the research were obtained by carrying out the qualitative, quantitative and action research.

The qualitative research aims to create an instrument (a questionnaire) for the quantitative research. The method of narratives was used in the qualitative part of the research where its participants described their experience of acquisition of foreign
In'ra Bojāre

languages. It resulted in a unique set of stories showing a person’s developmental adjustment to contemporary multilingual world. An important finding of the qualitative research was a personal six-step self-directed model of foreign language acquisition practised by one participant of the research (Bojāre, 2013).

The quantitative part of the research aims to make a typology of respondents according to their attitude towards the value of SRL, SDL and self-determined learning in classroom and virtual learning environment; to determine sensitive limit factors for promoting learners’ positive attitude towards autonomous learning for the acquisition of English in blended e-studies; to create a questionnaire for practical use in programmes of non-formal education.

It was carried out by the method of the survey. The main feature of the research instrument was a three-level questionnaire indicating the level of teaching, learning and learning environment. It was based on the results of the content analysis of the narratives. The data obtained by 5-point Likert-type *Self-directed English acquisition readiness scale (SDEARS) in blended e-studies* (Bojāre, 2013) were mathematically analysed using the 22.0 version of SPSS software. The quantitative statistical methods of primary data analysis and descriptive statistics with graphical visualisation of the data were used for the presentation of the research results.

The quantitative research resulted in reducing the number of indicators from 306 to 126 and creating a short form of the questionnaire. It can be used for practical self-evaluation of participants and dividing them into groups within the programmes of adult non-formal education. The restriction of the scale is insufficient inclusion of collaborative learning because of the responsibility integration of teachers, learners and groups in virtual language acquisition.

The results of the quantitative part of the research show that only education and professional belonging are meaningful for dividing the respondents into groups. Decision making depends on the respondents’ social and professional role and on their level of education. Two groups revealed three preferred stable forms of learning process – learning directed by the teacher or autonomous learning, but one group expressed an uncertain opinion.

It consisted mostly of the participants of English acquisition programmes of adult non-formal education. They were chosen for further inquiry by SWOT analysis of inquired factors for the facilitation of the transformation of the system of values. The action research aimed to determine the possibilities of the facilitation of the sensitive limit factors expressed by the metacognitive strategies for the development of the learners’ learning experience and competence.

The participants were inquired by the short form of the questionnaire (Bojāre, Ignatjeva, 2014) in the first cycle of the action research and the validity of the questionnaire was practically checked. After that they analysed the proposed methodological factors by the SWOT analysis individually, in pairs and in groups in the second cycle. The SWOT analysis was done by the facilitators in the third cycle.

The personal factor – F1 in Figure 3, the factor of involvement – F2, the factor of organisation – F3, the factor of evaluation – F4, the factor of knowledge – F5, the factor of skills – F6 and the factor of development – F7 were determined by the factor analysis during the quantitative research. The working lists contained the strengths of factors in the classroom and virtual learning because their weaknesses were removed as
a result of the factor analysis. The participants of the action research described the opportunities to use them and wrote why those opportunities could not be used.

The first interpretation of the data obtained was done from the point of view of harmonic and general development of a personality (Bojäre, 2014), but it did not fit exactly in the system approach. Their reinterpretation was done on the basis of sensitive factors. The factors are expressed by metacognitive strategies. Metacognitive strategy of skills (working with learning materials, developing listening skills, translation) is the most understandable strategy for the participants of the action research with 3.58 points on average (see Figure 3).

Traditionally, it is pedagogically and technologically facilitated and corresponds to the traditional pedagogical approach and strong paradigm of sustainable development. It strengthens the knowledge and information society that is based on innovative economics.

![Figure 3. Evaluation of metacognitive strategies](image)

The metacognitive strategy of participation, for opening the whole for its developing and fractal dividing, has the lowest evaluation – 3.32 points. The metacognitive strategy of development strengthens weak or deep humanistic paradigm of sustainable development of the society. It is the metacognitive strategy that has the second lowest evaluation – 3.37 points.

The metacognitive strategy of participation is a less understandable factor (selecting methods and strategies for performing the task, making tables about learned topics and grammar rules, making mind maps and layouts about topics and grammar rules learned). The metacognitive strategy of development includes writing a letter, writing a creative essay, and a general investigation of the topic.

Pedagogical facilitation of the metacognitive strategy of development and technological support of metacognitive strategy of participation lead to new pedagogical approach and deep paradigm of complex sustainable development. Pedagogical process
of e-studies is supported by the internet that broadens collaboration and promotes the development of the learning society.

Pedagogical facilitation of metacognitive strategy of development would promote creativity and transformation of other factors by the mechanism of synergy in six steps mentioned in the holistic model of autonomous learning for the acquisition of English in blended e-studies.

The validity of the research was verified by the methodological triangulation. The validity of the research instrument was checked by comparing it with the European Language Portfolio for adults (Dalbiņa, Grinberga, 2006) and practically in the action research. The validity of the research data was ensured by using two forms of research instrument and qualitative data collection. The validity of the research was based on the holistic paradigm of science, grounding the design of the practical research upon the results of the previous parts of the research and seeking for the adequate and contemporary interpretation of the obtained data.

It is recommended to facilitators of English acquisition programmes of adult non-formal education to take into account learners’ education, social and professional role in groups and change the direction of the pedagogical facilitation for the development of learners’ learning experience and competence by facilitating the metacognitive strategies of participation and development.

The future direction of the practical research is the use of the model by carrying out the action research in other groups of English programmes of adult non-formal education for developing research methodology; investigation of the group of librarians as the most autonomous learners and their role in facilitation of groupmates for their integration into the environment.

The research instrument should be improved by including the methodological factor of collaboration because of the integration responsibilities of teachers, the learners and groups for reaching the learning goals in virtual learning environment. The future direction of the theoretical investigation is connected with the fourth dimension of time and temporalisation for an individual’s integration and self-realisation in time.

**Conclusions**

The created holistic model of autonomous learning for the acquisition of English in blended environment of e-studies in the context of adult non-formal education shows more holistic comprehension of the deepness and the structure of the complexity of the process. Its systemic peculiarities determine its natural integration in the processes of sustainable education that is essential for the phenomenon of sustainability. The results of the research show that such a process of learning action in the acquisition of foreign languages creates changes in learners’ system of values. They include the relationships between the participants of the learning process based on the responsibility and the strategies of acquisition of English. They define learner’s experience and competence of learning influenced by the participation in virtual learning environment. The development of language skills is technologically and pedagogically facilitated. It is recommended to implement the pedagogical facilitation by means of metacognitive strategy of development for broadening the learners’ experience and competence, for promoting the learners’ interaction in and with the learning environment supported by the internet. The results
of the research are significant for developing the concept of autonomous learning from radical autonomous learning and the social level of self-directed learning to environmental level of self-determined learning in the group in the context of sustainable education.

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The purpose of the present study was to discuss the way of organizing free lunch at public schools as an important precondition for social equality and sustainability in school, by revealing acute forms of social disjunction in Lithuanian schools as a major incongruity with Children Rights, and an obstacle to the achievement of general education goals. The objective of the study: to study the experience of pupils subject to free lunch in public schools, as well as the experience and viewpoints of pedagogues involved in the organization of free lunch in relation to social equality and sustainable schooling.

A qualitative research was conducted in several Lithuanian schools focusing on the experience of the pupils, who had the privilege of having cost-free lunch at schools, as well as the pedagogues involved in organizing free lunch. The research data indicated the violation of children’s rights to healthy nutrition, as the respondents complained about the quality and the way of implementation of free lunch in schools. The research data revealed some discriminatory practices of separate queues to provide dishes to pupils from needy families, and limited or lacking opportunities for them to choose dishes. The analysis of the research data lead to the recommendation to professionally assess the correspondence of the organization of free meals in the aspects of effectiveness, legal regulation and ethics with children’s needs.

Keywords: free lunch, children’s rights, pupils, public school, children from needy families, nutrition, social equality, sustainability

Context of the Study

Problems of social equality are common in every society, and public school is a special institute where educative experiences bring together people of various social origin and life circumstances. Although a specific element of school life, having lunch and other meals at school is related to children’s vital nutritional needs and thus should be treated as one of the basic descriptors of the social environment of a school. On pragmatic grounds, J. Dewey has paid special attention to the educative role of school environment and social experience: “We never educate directly, but indirectly by means of the environment. Whether we permit chance environments to do the work, or whether we design environments for the purpose makes a great difference” (Dewey, 2013, p. 16).
In the second half of the 20th century a significant progress was achieved in public education theory and practice. Discussing the sustainable school in the contemporary context of Western culture, W. Scott (2013) has addressed social issues among the essential descriptors of the eco-restorative vision of the future good school and sustainable education, including communication, wealth, self-realization, self-respect and happiness. It is noteworthy, that evident effect on educational outcomes was fixed in some countries after radical reform in provision of meals at schools (Belot, James, 2011), and positive progress of class behaviour achieved after the modification of dining rooms (Storey et al., 2011). Then some experts of relevant educational vision have emphasized equity as the central object of focus in discussing any question of what the best practices of teaching are (Nilson, 2010).

Education management in the countries of the European Union must correspond to the recent flagship initiatives of “EUROPE 2020” strategy for smart, sustainable and inclusive growth. It is crucially important that the “European platform against poverty” is implemented; its goal is to ensure social and territorial cohesion so that the benefits of growth and jobs are widely shared and people experiencing poverty and social exclusion are enabled to live in dignity and take an active part in society (Communication from the Commission. EUROPE 2020, 2010). With reference to national traditions and current national topicalities, the recommendations of the experts of European Commission should not be neglected by the authorities of the European countries, especially because comparative statistical surveys have revealed some critical deficiencies among respondents of school age.

For instance, Lithuania was identified as number one in prevalence of peer jeer, the highest rates of teenagers’ suicide and the least percentage of happy children (Bradshaw, Hoelscher, Richardson, 2007; Patyčios Lietuvos mokyklose: problemos ir jų sprendimo būdai, 2009). A representative survey of discrimination in Lithuanian schools in 2009 revealed evidence of discrimination on grounds of social position. In particular, it found peer isolation of the students who came from poor families (Jonutyte et al., 2009). The same survey revealed the tendency of students coming from more wealthy families to sneering and jeering at or ignoring students coming from less wealthy families.

The alarming data on the Lithuanian children’s condition led to corresponding administrative efforts and practical initiatives of educators and authorities. Special endeavour to reduce social exclusion was incorporated in the strategic Lithuanian national documents (Lithuania’s Progress Strategy “ Lithuania 2030”, 2012). National documents on education emphasized the need to create an effective system of social assistance for disadvantaged participants in the educational system (State Strategy for Education 2013–2020, 2013). The frame of the strategic goals led to development of a new learning environmental model with a new emphasis on the whole of learning and experience. The most important feature of a successful school performance is considered to be the appropriate implementation of the school’s mission, i.e. good (desirable, acceptable) educational outcomes and rich, memorable, meaningful, pleasurable school life and learning experiences. Following the concept of good school, new learning environment models have become especially important, for example, the model of personality development for value orientations – a person’s social, civil, and moral maturation (Geros mokyklos koncepcija, 2015).

In practice, these objectives of the “good school” are yet to be reached because there is a discrepancy between the conceptual flagship and its realization. The gap
between the high standard values declared in the official schooling programs and the common practice in schools has been spotlighted by some researches (Cohen, et al., 2009).

One of the best models of sustainable schooling, including a progressive model of meals in public schools can be found in Finland, where free lunch for every pupil is set in the national laws and recognized as an investment in the future, as an important precondition to healthy society, good learning achievements, social solidarity and, in general, as a guaranty that everyone has equal access to education (The Basic Education Act (628/1998), 2010).

After joining the United Nations Convention on the Rights of the Child in 1992, Lithuania accepted the obligation to put all its efforts to guarantee the protection of the children’s rights (Convention on the Rights of the Child, 1989). The convention recognized the inalienable right of every child to live, grow, be healthy and have living conditions necessary for his or her physical, mental, spiritual, moral and social development. Parents or other persons responsible for the child have the primary responsibility to secure the conditions of living necessary for the child’s development but, in case of limited abilities and parents’ financial capacities of, the state party shall take the appropriate measures and shall provide material assistance and support, particularly with regard to nutrition, clothing and housing (Convention on the Rights of the Child, 1989).

Despite national and international efforts to protect and promote the rights of the child, the situation of children in Europe and around the world is yet far from satisfactory. Ombudsperson for Children’s Rights of the Republic of Lithuania has officially reported national poverty rates varied from 22 to 27 per cent (Comment of the Ombudsperson for Children’s Rights of the Republic of Lithuania…, 2012), while the latest national statistics provided slightly lower rates, close to 20 per cent.

The UN Committee of Child Rights in the General Comment No. 15 on the right of the child to the enjoyment of the highest attainable standard of health noted a special importance of provision of adequate nutritious foods for the children. The need to ensure all pupils to a full meal every day is emphasized, along with the efforts to enhance children’s attention for learning and increase school enrolment (Committee on the Rights of the Child, 2013).

In a similar way, the importance of appropriate nutrition has been recognized by many researches as one of the basic preconditions for physical, mental and emotional development, as well as successful learning (Szczepańska, Deka, Calyniuk, 2013). Because of the need for intense scheduling and continued duration of four to eight hours at school, plus the time spent by pupils on the way to the school and back home, school meals must be considered an important part of pupils’ whole day ration. That is why school meals must be complete and sufficient. School lunch is expected to satisfy one third of pupils’ daily ration (Finnish National Board of Education, 2008; Kupiainen, Hautamäki, Karjalainen, 2009).

Legal acts of Finland set the obligation for every municipality to draw up a plan for pupils’ welfare. A well-balanced meal for each pupil every school day is one of the main attributes of national system of education in Finland, ensuring that everyone has equal access to education in both declarative and practical ways. Educational model in Finland has evidently made an impact on other North European countries, for instance, Sweden, Estonia, Latvia, UK and some others to adapt similar practices of free meals for all or for some of pupils of public schools. In a similar way, school policies are grounded on children’s need of healthy nutrition, social equality and sustainable schooling.
As a developing democracy with a developing economy, Lithuania has adopted basic European legal norms in relation to human rights, and with this adoption there can be no excuses like economical deficiency or lack of funds for schools to guarantee the rights of children to healthy nutrition and personal dignity. Therefore, institutions of the Republic of Lithuania put their best efforts to follow the general provisions of the Convention of the Rights of the Child, UN Committee of the Rights of the Child as well as adopting the best practices of other European countries.

In Lithuania, the State is ready to provide its support for every child from needy families (Republic of Lithuania Law on Fundamentals of Protection of the Rights of the Child, 1996). Following the Republic of Lithuania Law on Social Assistance for Pupils, pupils shall have the right to free meals and to the assistance in purchasing school supplies if the average monthly income per one of the persons living together or single person (hereinafter referred to as “average income per person”) is less than 1.5 amounts of the state-supported income (Republic of Lithuania Law on Social Assistance for Pupils, 2006).

Human rights and equal treatment of every person is an undeniable standard in democratic Western societies. Specifically, the rights of children unquestionably must be observed, with the continuing efforts to implement the best practices in juvenile institutions. With the rising interest in the nutritional quality of food in schools in respect to students’ health, quite unintentionally the problem of human dignity and children’s rights emerged. This problem was discovered during the recent investigation of the experience of pupils and their teachers, particularly related to organizing free lunch served in public schools of Lithuania.

The purpose of the present study was to discuss the way of organizing free lunch at public schools as an important precondition for social equality and sustainability in school, by revealing acute forms of social disjunction in Lithuanian schools as a major incongruity with Children’s Rights, and an obstacle to the achievement of general education goals.

Objective of the investigation: to study the experience of pupils subject to free lunch in public schools, as well as the experience and viewpoint of pedagogues involved in the organization of free lunch in relation to social equality and sustainable schooling.

Participants and Procedure

A qualitative research method was chosen as the most relevant for obtaining the data about the experience of pupils, who were privileged to receive free lunch, as well as about the experience and attitudes of their pedagogues involved in the process of organizing free lunch, as well as the issues of social equality in relation to sustainable schooling. There were not enough reliable data about peculiarities of organizing free lunch in public schools and pupils’ experience in Lithuania, and therefore a new investigation was needed.

Participants. The investigation was carried out in five randomly selected schools in Vilnius city, Kaunas city and Vilnius area. A selective criterion for the identification of respondents was applied because the research was focused on the respondents’ specific experience, rather than on the experience of any random pupil or teacher. Therefore, it was important to select respondents who had experienced the phenomenon under study. They were students of public schools of ages 11 to 15, who enjoyed the free lunch
program in their schools, and pedagogues who were responsible for organizing meals in their schools.

The research participants were interviewed to achieve informational redundancy (Bryman, 2012). The volume of the sample was nine pupils and six pedagogues when no new information was received from them (Table 1).

Table 1  
The Research Sample

<table>
<thead>
<tr>
<th>Informant</th>
<th>Number</th>
<th>Age (years)</th>
<th>Sex</th>
<th>Locality of the school</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupils</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I-1</td>
<td>11</td>
<td>M</td>
<td>Vilnius city</td>
<td></td>
</tr>
<tr>
<td>I-2</td>
<td>11</td>
<td>F</td>
<td>Vilnius city</td>
<td></td>
</tr>
<tr>
<td>I-3</td>
<td>11</td>
<td>M</td>
<td>Vilnius city</td>
<td></td>
</tr>
<tr>
<td>I-4</td>
<td>14</td>
<td>M</td>
<td>Vilnius district</td>
<td></td>
</tr>
<tr>
<td>I-5</td>
<td>14</td>
<td>F</td>
<td>Vilnius district</td>
<td></td>
</tr>
<tr>
<td>I-6</td>
<td>15</td>
<td>M</td>
<td>Vilnius district</td>
<td></td>
</tr>
<tr>
<td>I-7</td>
<td>15</td>
<td>F</td>
<td>Vilnius district</td>
<td></td>
</tr>
<tr>
<td>I-8</td>
<td>11</td>
<td>F</td>
<td>Vilnius district</td>
<td></td>
</tr>
<tr>
<td>I-9</td>
<td>11</td>
<td>M</td>
<td>Vilnius district</td>
<td></td>
</tr>
</tbody>
</table>

| Pedagogues |        |             |     |                        |
| I-1       | 42     | F           | Vilnius district |
| I-2       | 37     | F           | Vilnius district |
| I-3       | 53     | F           | Vilnius city |
| I-4       | 48     | F           | Vilnius city |
| I-5       | 26     | F           | Kaunas city |
| I-6       | 49     | F           | Kaunas city |

The interviewing was realized in January – February 2015. Prior to the investigation, the permissions of school administration and parents of the selected pupils, as well as the respondent children’s consent were received. With the respondents’ agreement, the interviews with them were recorded using a Dictaphone. The interviews with pupils were coded as I-N, and interviews of pedagogues – as II-N.

The qualitative investigation was focused on the question of whether lunch in public schools corresponded to the need for meals of the pupils from less wealthy families, and how the need for such meals was organizationally met.

The method of semi-structured interview was chosen as the most relevant and two different interview guides were designed to interview the pupils and the pedagogues (Table 2).

Table 2  
The Interview Topics

<table>
<thead>
<tr>
<th>Interview guide for:</th>
<th>Interview topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>pupils</td>
<td>Relations with peers</td>
</tr>
<tr>
<td></td>
<td>Relations with teachers</td>
</tr>
<tr>
<td></td>
<td>Meals at school</td>
</tr>
<tr>
<td>teachers</td>
<td>Meeting pupils’ physiological needs for nutrition at school</td>
</tr>
<tr>
<td></td>
<td>Subjective value of free lunch</td>
</tr>
<tr>
<td></td>
<td>Social justice</td>
</tr>
</tbody>
</table>
The method of qualitative content analysis (Berg, 2007) was applied to analyse the data collected. The transcriptions of the interviews were read several times with the purpose to extract important statements that were directly related to the respondents’ experience. Those statements were then grouped and transformed into several themes and subthemes for reliable interpretation.

The research ethics. The investigation was conducted according to the requirements of the social research ethics: the respondents were informed about the objectives and the contents of the survey, confidentiality was kept to preserve their personal data and voluntary participation was guaranteed by asking for personal consent to be interviewed with the possibility to withdraw from it at any moment.

Research Findings

The central aim of the data analysis was to reveal and categorise the experience of the pupils who were subject to free lunch at school. Due to the limits of the present article there were no possibilities to display the full framework of the research with all the variety of subthemes as it was revealed in the process of content analysis. Therefore, the scope of the social equality led to a special focus on some of the themes, especially the ones related to children’s basic nutritional needs, as well as common social standards of the school community.

First, a positive evaluation of free meals in school was abstracted, as both pupils and their teachers spoke about the importance to satisfy the nutritional needs of everybody, and those of children from less wealthy families in particular. Then the combination of subthemes like “long queues”, “duration of the break”, “unfriendly behaviour of other (or the older) pupils” led to the formulation of the first problem related to the availability of meals for pupils in school (Table 3).

Table 3
Availability of Meals

<table>
<thead>
<tr>
<th>Theme</th>
<th>Pupils</th>
<th>Pedagogues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of meals in school</td>
<td>“It takes long to wait in the common queues, the older students come straight to it... it happened recently that I had to leave it hungry and nervous (I-1). “Today I was not able to eat as the queue was very big, it takes long to serve everyone” (I-2). “It's a common queue... it's enough time to eat only if our teacher allowed us to leave earlier” (I-5)</td>
<td>“It’s not good that they all come during the only long break which takes 20 minutes. There are many children, they have to eat fast, and it is not healthy to eat fast. Probably, not everyone has enough time to eat” (II-3). “It’s alright because there are children from poor families and they can get meals. Those who are from the poorest families probably consume everything that is served, in addition also what has been left uneaten by a friend...&gt; there are children who don’t attend their classes, are ill, but they come for lunch and then leave” (II-4)</td>
</tr>
</tbody>
</table>

In general, every pupil respondent complained about the way of organizing meals at school and their remarks were endorsed by the pedagogues, who expressed similar criticism concerning the organization of school meals and the free lunch program in
particular, recognizing that pupils lack time for their meals. It led to the identification of the problem of an insufficient availability of meals for pupils as they were not guaranteed the necessary time for meal during the lunch break. A further analysis of the problem would lead to the inquiry of the practices of organizing meals in schools and the causes preventing the possibility for every child to have lunch.

Another major problem identified during the research was that of the lack of the dish choice for students who were the users of the free lunch service in their schools. It led to the formulation of the next theme (Table 4).

Table 4
Possibility to Choose Dishes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Pupils</th>
<th>Pedagogues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possibility to choose dishes for free lunch</td>
<td>“There are three parts of lunch. You are allowed to choose only the drink. If you wish something else – you need to pay” (I-1); “I have no choice of dishes” (I-2); “No choice” (I-3); “I get it for free, therefore I eat what they serve” (I-4); “You can’t choose if you take it for free, you can choose only if you pay” (I-5); “There is no choice” (I-6); “Having a choice would be great. My classmates, who do not receive free lunch, get much more delicious dishes” (I-9).</td>
<td>“There is no choice for the children who receive free lunch – usually there are dishes served which match their price” (II-1); “Children can’t choose. Just there is a variety of one dish one day and another dish on the next d &lt;…&gt;” (II-2); “Differentiation, a choice of dishes would be an advantage in organizing meals.” (II-3); “&lt;…&gt; of course, it would be better if they could pick some products what they wish, as it is in some restaurants, or hotels, where they can choose. Pupils love that.” (II-3).</td>
</tr>
</tbody>
</table>

The problem of the possibility to choose dishes was evident in all of the schools considered. All the respondents, both pupils and pedagogues, indicted the problem and only minor choice of dishes with supplements or beverages was noticed in some of the cases. Seemingly, pupils of smaller schools had no choice of dishes at all, as there was only one option of every dish on a particular day, and another for the next day, according to the earlier scheduled menu for those who were using free lunch tickets. The pupils’ complaints concerning free lunch were confirmed by the teachers who noted that at the same time there was a good choice of dishes to buy.

The next theme was related to the subjective assessment of food quality by the pupils and the pedagogues (Table 5).

The content analysis revealed a range of subjective assessments from “delicious” to “tasteless” and even “disgusting”. Pupils told which products and dishes they never ate, they also complained that portions were small and they still felt hungry after lunch. While teachers were mostly concerned about some good-looking products left uneaten and likely hungry children because meals in school did not correspond to their eating habits and dishes they ate at home.

Basically, one may notice a relation between the possibility to choose a dish and the subjective assessment of the taste of dishes as both of them attribute to the same issue of the quality of food service in school. Every child is an individual and one’s individual taste may only be pleased if there is a choice of dishes.
Table 5  
Quality of Dishes of Free Lunch

<table>
<thead>
<tr>
<th>Theme</th>
<th>Pupils</th>
<th>Pedagouges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjective assessment</td>
<td>“It’s delicious” (I-2); “Everything is delicious with exception of cutlets” (I-3); “Today they gave cabbage – I don’t eat cabbage. I don’t like cutlets” (I-4); “They serve it delicious, but too small. Sometimes it’s, for instance, mushroom soup. I don’t like mushrooms. Then I don’t eat.” (I-7); “There are my classmates who are very dissatisfied – the portions are too small or food is not delicious” (I-8); “Pancakes happen to be very distasteful &lt;…&gt; I don’t eat then.” (I-9).</td>
<td>“It happens that they don’t eat some dishes, in fact, they just drink compote, very often they refuse to eat soups, then soups are left on the tables, if children don’t like &lt;…&gt;” (I-1); “I assess it as good &lt;…&gt; we serve it qualitatively, it’s delicious and various.” (I-2); “Children don’t eat the food, we don’t know what the children eat at home, and we seriously need to find out what they eat at home. They leave the food and it’s a pity &lt;…&gt;” (I-4).</td>
</tr>
<tr>
<td>of the quality of dishes of free lunch</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Finally, the problem of social equality and human dignity contravention emerged in the situations of providing pupils with free lunch at schools (Table 6).

Table 6  
Social Equality Facet

<table>
<thead>
<tr>
<th>Theme</th>
<th>Pupils</th>
<th>Pedagouges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unequal opportunities and the sense of human dignity</td>
<td>“My classmates, who do not receive free lunch, get much more delicious dishes” (I-9).</td>
<td>“What about sneering? There had been cases that children did not come to get their free lunch tickets; later we found out that they were ashamed, because there was a separate queue for those with tickets. Of course, that is done for effectiveness, to avoid jostle and feed them faster, but that separation is not good in the social sense. Younger children do not pay attention to that, but those at the age of fourteen, the eight-graders, some of them feel ashamed”; “They often feel ashamed &lt;…&gt; we encourage children, we tell them: – “Do not be ashamed, it’s a privilege for you that you receive support, enjoy it!”” (I-3).</td>
</tr>
</tbody>
</table>

The research did not include direct questions concerning the issue of free lunch aimed at investigating pupils’ experiences because of their imparity to their peers who were taking paid lunch. It was a deliberate attempt to not engage pupils’ attention to the problem of presumable unequal treatment during their school lunch. Evidently, classmates of the free lunch subject pupils had noticed them passing a special ticket instead of money, standing in a separate queue or sitting by the distinct tables, as it is a common practice in some of the observed schools.

Some of the pedagouges claimed that there was no peer jeer due to the inequality of the pupils during school lunches but some others did acknowledge the problem. In particular, the teachers have attested that some pupils of the higher forms were evidently shy or felt ashamed to use free lunch tickets, kept avoiding picking up the tickets and omitted the lunch time. The current research did not note a particular case of somebody
Social Equality as Groundwork for Sustainable Schooling: The Free Lunch Issue

Discussion

The research data analysis led to the identification of several problems related to the school lunch practice. The limitations of the study do not allow expanding the findings and to resume about the national public school practice in organizing free lunch but nevertheless, the study identified some children’s needs and rights as the issues that need to be discussed.

The quality of meals served in schools has always been what pupil’s complain about. Besides, it has always been under an increased control of responsible institutions. But the different service of paid and free meals in public schools, especially the limited choice and practical segregation of peers during lunch leads the discussion to a broader scope of pedagogical, ethical and legal norms.

Following the order of the Health Care Minister of the Republic of Lithuania “On the approval of the inventory of the order of realization of meals in institutions of pre-school, general education schools and houses of juvenile social care”, it is recommended to ensure a choice of several main hot dishes and several types of garnish for lunch. The research has revealed particular facts of negligence of this recommendation, as quite often there was only one dish for those pupils who were taking free lunch, in contrast to pupils who paid cash. The same problem has also been raised by parents, who were not pleased with meals served to their children who had no choice of dishes. The lack of choice and the necessity to consume unwanted dish served harm the principles of personal individuality and uniqueness, as taste is one of a human’s characteristics concurrent to the personal growth.

The practice of segregation of pupils who eligible for free lunch tickets by depriving them of the possibility to choose dishes, and, in some cases, putting them into a separate queues, is presumably discriminative and induces social isolation. Even the use of tickets instead of cash makes the users of free lunch easily recognizable by their peers, and presumably contradictory to their dignity. The Republic of Lithuania Law on Education Article 3.33 states that social care and facilities, provided to children of poor families and thus experiencing social segregation, must be provided with discretion and respect of their dignity, that is, the way of providing social facilities shall not increase discrimination nor make conditions for evident exclusiveness in school or class community. In the case discussed we have observed that manifested by the limited choice of dishes available for pupils from poor families, the use of free meal tickets, which makes them easily recognizable among their peers in the queue and as a physical seclusion if separate queues for poor children are in practice.

It is interesting to note that a similar problem of providing free lunch was observed in public schools in the USA not a long time ago. D. Constantine (2015) has spotted a school case in San Francisco involving the practice of separate queues. One of the queues
consisted of cash paying pupils, who had the full choice of dishes, and another queue consisted of low-income pupils, who received special pre-packed dietary. Experts evaluated it as a practice of “evident segregation” bringing pupils “back to 50-ties”. Separate queues for low income pupils in the sight of their peers were named as “queues of shame” with unhesitating conclusion of stigmatization of pupils in those queues. At the same time consistent facts of “forgetting” to eat the lunch instead of joining the “queues of shame” were observed.

Further investigation revealed similar practice of different queues to realize dietary or free lunch in almost one third of the total number of public schools in the USA!

After the recognition of the separation of pupils who paid and who did not pay for lunch in schools as a contradiction to the Universal Human Rights and laws of the USA, active steps were made to correct the practice. Following experts’ recommendations, electronic money was one of the most effective solutions to service everyone in the same queue and to eliminate coloured food tickets for low-income people. The new practice was accepted with enthusiasm by both students and schools personnel. It is interesting to note, that before introducing electronic money in schools, there was a fear of extra expenses and drop of profit in school canteens. But practice demonstrated the opposite, as electronic money made service faster, increased circulation and even enlarged the profit of food supplying companies.

Various and effective practices to avoid discrimination were adopted in Scandinavian schools. In Finland, since early 1940, a law demanded municipalities to provide free lunch for all pupils in schools (Raïiha et al., 2012). The present law of Finland on Common Education (The Basic Education Act (628/1998), 2010) appoints daily supply of high quality food for pupils of public schools. It is provided free for every pupil in primary schools. For higher grades, various practices have been adopted under the main principle of no discrimination at all, including forms of positive discrimination in favour of pupils from low-income families.

The leading countries, providing free meals for pupils in schools, are Finland, Estonia and Sweden. Some countries have applied practice of free meals in their primary schools (India) and some countries are in the lively process of discussing various models of free meals in schools regarding the social equality issues (like Latvia, UK, USA, etc.). In Lithuania, some national programs of cost-free products for pupils (fruits, milk products) were implemented in primary schools, but the majority of pupils in public schools still encounter typical practices of organizing school meals without proper respect to the needs of the moral and social development of their personality.

Consideration of the implementation of free meals in school as an important element of school life in relation to the children’s rights leads to the recognition of disregard of one of the basic principles of the children’s rights – the implementation of one right shall not contradict another right. In the case of the present discussion, one may notice that the realization of the child’s right to safe environment and healthy nutrition intersects with another fundamental right of any person to be not discriminated.

A child’s dignity is absolute and cannot be compromised. Dignity of a child from a needy family cannot be questioned because of social assistance. Every human shares the same dignity and it cannot be diminished by any characteristics of his or her social status, and every child must be equally treated and respected, no matter what his or her social status other social circumstances are.
Humanism, as one of the basic principles of educational system, is a demand for the recognition of every person’s dignity, humane relations with close regard to self-actualization, free choice and responsibility (Pukelis, 1998). Therefore, any effort to provide pupils with social assistance would be meaningless, if it was not grounded on the respect of every child’s personality.

In general, only legal, effective and ethical practice can be recognized as good and appropriate. In the case discussed, the ethical controversy is most evident. Even if it was recognized that providing different conditions for children of wealthy and poor families to receive meals in school was legal and effective, because that practice allowed every child to get food and make the process of serving meals faster, still there was the evidence of injustice: pupils were separated into different queues because of the social status of their families, there were minor possibilities to choose dishes for the pupils from low-income families, or there was even no choice at all in some of the observed schools.

Being rather a quick check-up than a presentable national investigation, the present study of the free lunch issue in public schools of Lithuania has highlighted some faulty practices, which seem discriminative and incompatible with the vision of a good sustainable school. It is a direct responsibility of the official founders of public schools to guarantee the observance of laws and the preoccupation to foster the best sustainable models of school life. No concept of “good school” could be realized without consistent efforts aimed at the improvement of school environment and constant care about children’s welfare.

Conclusions

School meal is more than nutrition and shall be treated as an integral element of school life, providing healthy environment, sustainable schooling and personal dignity.

The data of the present research have revealed the deficiencies of quality service and children’s rights infringements in some of Lithuanian public schools: no possibility to eat lunch for all pupils, besides pupils eligible for free lunch encounter some forms of discrimination because of limited or lacking opportunity for them to choose a dish, and discriminatory practice of separate queues for pupils from needy families.

The lack of attention to the common principles of the Children Rights and vital needs of the developing personality in the public school may become a serious obstacle to build social equality and sustainable schooling.

Acknowledgment

The authors would like to thank James E. Fisher, Ed. D. ERA/USA for reading and improving English of this article.

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