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Editorial

Greetings from the team of Editors-in-Chief and associated Editors who gradually were selected from the end of 2015, when the *Journal of Teacher Education for Sustainability* (JTES) marked the beginning of the Global Action Programme (GAP). UNESCO Chair on the Interplay of Tradition and Innovation in Education for Sustainable Development at Daugavpils University was involved in GAP through development of JTES and *Discourse and Communication For Sustainable Education* (DCSE) journals, through coordination of Editorial Board of both journals, through maintaining the annual conferences of the Baltic and Black Sea Circle Consortium on Educational Research, and through keeping active the oldest partnerships with UNESCO Chair on Reorienting Education to Address Sustainability from Toronto in teacher education. JTES CiteScore was growing under the collective wisdom and collective competence of current editors' team: 0.64 in 2015 and 1.15 in 2017. Thanks to all authors of JTES for articles and readiness to develop specific interests of journal. JTES voice has become stronger and more holistic during these years.

Issues 1 & 2 (2018) involved researches to more holistic perspective in educational research thought investigation sustainability, education for sustainability and education for sustainable development. Latvia, Finland, Indonesia and Iran authors presented research papers in both issues in 2018. The authors from these countries in some kind more influenced attention of the readers on issues on pedagogy as the science and pedagogical approaches in context of sustainability in 2018. We would like to express our gratitude to all the JTES authors for identification of specific mission of pedagogy as the science and participation in education research and investigation of ESD mission.

For the next 21 volume in 2019, the Editorial Board and UNESCO Chair at Daugavpils University invite authors to present research, meta-analysis and reflections on the implementation of GAP and Sustainable Development goals.

Now we will introduce authors and articles of volume 20, issue 2, 2018 of JTES. This volume contains the articles of authors from Estonia, Turkey, Kazakhstan, Latvia, Iran, Finland, Jordan, Indonesia, Germany, Bangladesh and New Zealand.

The paper by Marika Veisson and Abdülkadir Kabaday reflects on the Exploring the Preschool Teachers' Views on Professionalism, Quality of Education and Sustainability through the International Study in Estonia and Turkey.

Since education is a dynamic process and open to contemporary changes, professionalism which is vitally important for the sustainability of teacher education, has gained importance. Recent studies have emphasised the relations between professionalism and quality of teacher education and sustainability. The aim of the current study was to interview preschool teachers and to explore their views and understandings about professionalism, quality of preschool education and sustainability in Estonian and Turkish cultural contexts. Content analysis techniques were used for coding, finding the themes, arranging the sub-themes for interpreting the data obtained. Some suggestions were made to the teachers and educational policy makers related to the research findings.

The paper by Maria Hofman-Bergholm from Finland asks about Changes in Thoughts and Actions as Requirements for a Sustainable Future: A Review of Recent Research on the Finnish Educational System and Sustainable Development.

In numerous UN policy documents, a sustainable future through education is set in a key position. Therefore, it is of great importance to examine how different UN member countries work towards the implementation of sustainability at all levels of education. This article is a review of recently published research in Finland, with a focus on sustainability in the educational system. The intricate nature of sustainability requires a lot of

knowledge among teachers that is why teacher education becomes a crucial component for our sustainable future. All newly qualified teachers should be educated in sustainability and systems thinking. However, according to this article, that is not the situation now. Moreover, as this research implies, a complete reorganisation of teacher education is crucial in the work towards sustainability.

The paper by Irēna Žogla from Latvia develops a broader perspective on Science of Pedagogy: Theory of Educational Discipline and Practice.

The article discusses understanding of pedagogy in its capacity of science, practice and university discipline in the context of education sciences. It addresses the topical considerations that have become even more complex for implementation in the evolving importance of human relations and transition towards learning-centred and competence-oriented process of education. By reminding the most important historical processes of this intellectual tradition, the article traces the background of pedagogy and role of philosophy to foster the understanding of pedagogy as a unique, well-structured science and theoretical background for practices of formal and non-formal process. The article reminds of the object of investigation which has not been explored by any other science but pedagogy. In this capacity, the science of pedagogy is compared to discrete educational sciences. Being in constant development, pedagogy as teachers' philosophy-in-use in its three dimensions is open to topical developments; it leads to teachers' professional thinking and competencies, provides sustainability of organised educational process and triggers critique, discussions and improvements to an extent which is resilient to multiple destructive or unmanageable external forces. Conclusions remind therefore the benefit of adopting the science of pedagogy in the context of education sciences.

The paper by Adilya Suleimenova and Oksana Ivanova from Kazakhstan and Latvia reflects on the Emotional Competence and Individual Style of Action of Future Teachers of Higher Education in the System of Education for Sustainable Development.

The paper presents the results of the study of emotional competence and individual style of action of students – future teachers of higher education in the system of education for sustainable development (ESD). The study highlights several competences that are consistent with the components of emotional competence and individual style of action. The obtained results are examined from the standpoint of a holistic approach as consideration of the main holistic focus of the development of components of emotional competence and individual lifestyle. The results of the study will become the basis for further research of emotional competence and elaboration of the programme of development of emotional competence in the ESD system.

The paper by Jamal Abu-Alruz, Salah Hailat, Mahmoud Al-Jaradat, Samer Khasawneh reports about Attitudes toward Pillars of Sustainable Development: The Case for University Science Education Students in Jordan.

The primary aim of the study is to determine the attitudes of science education students at a public university in Jordan toward sustainable development. The validated instrument has been applied to a sample of 198 university students taking science education classes. Descriptive analyses have been used to analyse the data collected. Results of the study indicate overall positive attitudes toward three pillars of sustainable development (economic viability, society, and education). However, students' attitudes toward the environment as a pillar of sustainable development are negative. The study offers recommendations for theory and practice.

Rif'ati Dina Handayani, Insih Wilujeng, Zuhdan K Prasetyo presented the article about Elaborating Indigenous Knowledge in the Science Curriculum for the Cultural Sustainability.

The research presents the theoretical viewpoints of science education and indigenous knowledge to provide a new perspective on science learning. The results of the study

propose four steps to integrate indigenous knowledge in the science curricula: fragmented, connected, sequenced, and integrated. This study indicates that indigenous knowledge incorporated in the science competencies includes attitude, knowledge, and skill aspects. It establishes a connection between what pupils encounter in the school and their lives beyond the school for the cultural sustainability. In this sense, cultural sustainability aligns with a broader meaning to fit present needs without undermining the needs of the future generation.

Jens Hepper reflects on *The Influence of Generation and Experiencing Daily Routines on Educators' Training*.

The issue of teacher education in regard to generational changes is a matter of interest, due to the fact that our idea of how education is supposed to be conducted changes over time. This article takes this into account, as well as the matter how living together in a group might be an approach to further the transfer of ideas. Members of the younger generations Y and Z are more prone to choose modern, sustainable methods for Education for Sustainable Development. In those groups, where Generation Z educators lived together with Generation X or Y members, they were able to influence their in-mates. Due to this fact, it might be a suitable approach to let teachers in training live together, possibly even with older teachers, to make change happen.

Samrand Amini, Javad Gholami presented the idea on *Professional Development of EFL Teachers through Rotatory Peer Supervision*.

Amini and Gholami's paper deals with supervision in the English Language Teaching classes in Iran. Supervision in Iranian private language schools is most often carried out by one experienced teacher – supervisor. This paper reports a novel model of supervision, namely rotatory peer-supervision, in which supervision is delegated to English as a foreign language (EFL) teachers themselves. In rotatory supervision, experienced teachers take turns observing each other's classes and those of their less experienced colleagues and providing constructive feedback.

The paper by Md Al Amin, Janinka Greenwood from Bangladesh and New Zealand presents experience on the UN Sustainable Development Goals and Teacher Development for *Effective English Teaching in Bangladesh: A Gap That Needs Bridging*.

This article explores selection, recruitment and professional development provision for the secondary school English teachers in Bangladesh, and to what extent these are aligned with the UN Sustainable Development Goals. It argues that for the development of quality teachers a long-term, sound teacher preparation and continuous professional development plan is essential. On the other hand, short-term, project-based training funded by the donors and aid agencies seems ineffective for achieving the changes necessary for the sustainable development. Although this article is mainly about English teachers' selection, recruitment and training provision in one country's context, it offers useful insights for other developing contexts.

The paper by Farzaneh Emadian, Javad Gholami, and Mehdi Sarkhosh from Urmia University, Iran is entitled "Towards a Sustainable Curriculum for ESAP Teacher Training Program: A Profile of ESAP Content Specialists' vs. Language Instructors' Needs". It is concerned with sustainable practices in English for Specific Academic Purposes (ESAP) at Iranian universities. There has been scarce research in English for Specific Academic Purposes (ESAP) concerning the differences between language instructors and content specialists in terms of their needs. This paper compares the needs of EFL teachers and content specialists teaching ESAP courses based on three different categories of knowledge, namely professional, procedural, and personal knowledge.

Team of Editors-in-Chief:

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Exploring the Preschool Teachers' Views on Professionalism, Quality of Education and Sustainability: International Study in Estonia and Turkey

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Abstract

Since education is a dynamic process and open to contemporary changes, professionalism which is vitally important for the sustainability of teacher education, has gained importance. Recent studies have emphasised the relations between professionalism and quality of teacher education and sustainability. The aim of the current study was to interview preschool teachers and to explore their views and understandings about professionalism, quality of preschool education, and sustainability in Estonian and Turkish cultural contexts. In this study, qualitative research methods were used to analyse the data obtained from the participants. Fifteen preschool teachers from Estonia and 36 preschool teachers currently working in different parts of Turkey participated in the study. They were asked to respond to 15 open-ended questions about professionalism and quality of teacher education and sustainability. Content analysis techniques were used for coding, finding the themes, arranging the sub-themes for interpreting the data obtained. Some suggestions are made to the teachers and educational policy makers related to the research findings.

Keywords: professionalism, quality of teacher education, sustainability, preschool teachers.

Introduction

Since the United Nations Decade of Education for Sustainable Development (ESD; 2005–2014) began, the promotion of ESD has been highlighted as a necessity and therefore more emphasis is being placed on this within the higher education curriculum. Sustainable development is believed to consist of three dimensions: the protection of the natural environment, the maintenance of economic vitality, and the observance of specific social considerations. To raise the awareness of sustainable development in the

society it is necessary for teachers to understand concepts such as quality of education and professionalism, which are directly related to ESD. Moreover, it is important that different disciplines engage with this initiative. This poses the question what exactly teachers know about the relations of the concepts with sustainable development and whether this varies in diverse cultural contexts.

The current article is part of a wider international study where early childhood teachers from eight countries have been interviewed about their understandings of professionalism, quality of early childhood education and sustainability, and relationships between all these concepts. In this article we give an overview of the results in Estonia and Turkey. The purpose of this study was to find out how teachers in Estonia and Turkey understand professionalism, quality and sustainability and to answer the following research questions:

What is professionalism in early childhood education?

What is quality in early childhood education and how is it related to teachers' professionalism?

How do teachers understand sustainability in early childhood education and how is it related to professionalism and quality in early childhood education?

Theoretical Framework

The theoretical framework is based on the ideas of Goodson (2013) and the representatives of the critical ecology paradigm (Urban, 2010), according to which *professionalism* and its discourses and practices could link (global) macro and (local) micro systems, allowing for local and diverse practices and experiences to inform the professional knowledge in democratic practice-based evidence. According to Urban (2010), *professionalism* may be viewed as a focus on relationships within a complex ecology of the profession, space for dialogue and critical questions which value diversity and focus on the Freireian notion of hope. According to Carmen Dally research findings, there are three themes in *professionalism* of a preschool teacher: a distinct pedagogical style, specialist knowledge and practices, and an early childhood professional were also identified (Dalli, 2010). Professionals engage in a process of constructing new knowledge and applying it to practice. Understanding the complexity of professional knowledge and practice is an important step for all practitioners wishing to improve the quality of their practice (Dayan, 2010). Formal qualification requirements for preschool teachers have increased around the world. University-based initial teacher education, research-based professional practice and high-quality in-service training are regarded as essential ingredients of high-level teacher qualification. Altogether this tendency is considered as part of the political, professional and public movement to enhance preschool teachers' *professionalism*.

Research can make a positive contribution to each aspect of teachers' professional knowledge: practical wisdom, technical knowledge and critical reflection (Winch, Orchard, & Oancea, 2015). Pupala, Kascak, and Tesar (2016) analyzed everyday preschool practices in Slovakia in terms of tensions between policies, the teachers' workforce and the concept of professionalism. Teachers are decreasingly focused on the actual work with the children and are concerned instead with notions of accountability and reporting, which supposedly raises their professional status. Slovakia's experience

of the bureaucratic subjectivities of early year's teachers has complex ramifications for European and overseas countries as it problematizes and unmasks the global issues of complex tensions between the teachers and policy documents. Löfgren and Håkan (2017) reported that teachers frequently refer to a "preschool-kind of learning" that departs from children's interests about documentation. This stands out as a professional strategy that allows teachers to deal with contradictory policies about what should be documented. In their talk about how to conduct documentation, the teachers put themselves as learners. This is a way of "doing professionalism" that allows teachers to deal with demands for accountability in a way that also allows for professional agency. Kim (2013) explores how female teachers construct their occupational identities as teachers within early childhood education (ECE) settings.

The combination of feminist scholarship and the use of teacher life history method allow these women to describe themselves as professionally trained and educated teachers who love teaching and children even though they are suffering from low pay and a generalized social image so much that preschool teachers are just considered as "baby-sitters." These female teachers exhibited unique concept of professionalism: passion, dedication, and commitment to ECE field. Chang-Kredl (2017) examines the claim that teachers' subjective experiences can lead to social change through the perspective of the early year's teacher in Quebec. Fourteen early childhood teachers participated in memory writing and individual interviews. Data were inductively coded and analyzed in terms of the teachers' subjective experiences of: (1) their occupational image, (2) their day-to-day work in early childhood settings, and (3) their constructions of childhood. Analysis revealed a closer understanding of the interplay between the teacher's internal and external experiences, particularly in terms of childhood as a discursive concept, gendered assumptions about professionalism, and psychoanalytic notions of individuation. The study suggests that change will require that early years teachers develop and articulate their understandings of their subjective experiences in ways that simultaneously expose deeply entrenched assumptions in the social unconscious that deny recognition to educators whose work relies on their accessibility to the youngest children. Monk and Phillipson (2017) revealed that the educators' perspectives of professionalism and professionalization related to their work-life roles, their cultural understandings and relationships, and how they believed they were viewed by others in relation to the status of early childhood education. Harwood and Tukonic (2016) showed that all the educators held a strong self-perception of professionalism regardless of their level of education, reporting high levels of job satisfaction, competence, recognition as a professional from others, and self-recognition as a professional. Participants' notions of professionalism focused on the qualities of an individual considered a professional (e.g., good listener, patient, and understanding. Clasen and Jensen de López (2017) suggest that after the implementation (1) early educators report having changed their shared book reading practices, taken ownership of the programme and successfully integrated it into current practices, (2) the early literacy programme has supported early educators in their professional development and (3) early educators see the early literacy programme as a tool for improving social inclusion among children in day-care centers. Based on the results we conclude that reflecting on current practices, the development of a new professionalism and taking ownership are crucial processes in changing practices and in the successful implementation of new programmes. The study of Mikser, Tuul, Veisson

and Goodson (1918) indicate that during the professional career of most teachers, demands have increased and teaching has become more difficult. In the opinion of the respondents this is caused by changes in educational life as well as in the society as a whole. However, most teachers also think that teacher's freedom to make decisions about the content and the results of one's work have also increased.

Quality in early childhood education includes most often education on the use of a curriculum, staff characteristics, teacher behaviors and practices, and the staff-child interactions. *Quality* in most countries involves structural features of the settings (space, group size and other standards (OECD, 2012; OECD, 2015; OECD, 2017). According to Öun (2009), *quality* is higher in childcare institutions that apply a child-centered approach, and a study by Öun et al. (2014) showed that the indicators of the quality of the learning environment differed in different preschool groups, whereas spatial conditions of the groups had an impact on several factors.

There are two different definitions of education for *sustainable development* (ESD): 1) as a threefold approach to education, based on questions concerning education about, in, and for the environment 2) Second, as an approach to education that includes four interrelated dimensions – economic, social, environmental, and cultural. The first area relates to how teachers understand ESD, while the second area focuses on how ESD can be implemented in educational practice (Hedefalk, Almquist, & Östman, 2015). According to a study by Ritchie (2012), there have been programs within early childhood care and education settings that offer Maori perspectives on caring for ourselves, others, and the environment. Research in Australia (Dyment et al., 2014) has shown that participants widened their understandings of Early Childhood Education for Sustainability (ECEFS) from a narrow environmental focus to a broader understanding of the social, political and economic dimensions. They also found that Early Childhood Education and Care (ECEC) educators are well placed to engage with Education for Sustainability (EfS) more readily than might educators in other education sectors. According to Pipere, Veisson and Salite (2015) and Wals (2013), one of the issues connected with this field is that most of the universities that engage in *sustainability* are universities that have a focus on education rather than on research. Strong research universities tend to pay less attention to both ESD and sustainability in general (Wals, 2013). The aspiration of sustainable development requires us to resolve common problems and tensions and to recognize new horizons. Economic growth and the creation of wealth have reduced global poverty rates, but vulnerability, inequality, exclusion and violence have increased within and across societies throughout the world. Unsustainable patterns of economic production and consumption contribute to global warming, environmental degradation and an upsurge in natural disasters (UNESCO, 2015, p. 9). Education for Sustainable Development (ESD) is thus described as a model of education that aims to enable learners to constructively and creatively address present and future global challenges and create more sustainable and resilient societies (UNESCO Global Education Monitoring Project, 2016, p. 494). Recognition of our planet as a finite ecosystem, however, results in a “definition of sustainable development constructed from an eco-centric worldview” which serves as a “pathway to a future where environmental, social and economic growth” are recognized as being synergistic (Holdsworth, Thomas, & Hegarty, 2013, p. 352). In addition to ecological/environmental sustainability, considerations of cultural, social, economic and political sustainability refer to the maintenance of diverse cultures

and the languages and identities of their members, to wellbeing and quality of life, justice, citizenship, peace and participation. It is also salient to observe that both cultural diversity and biodiversity are being simultaneously and seriously diminished by destructive development forces (Gorenflo et al., 2012).

Method

Participants

Fifteen preschool teachers from Estonia and 36 teachers from Turkey participated in this study. In Turkey, mean age was 32 years. Work experience of teachers in Turkey was 2-23 years. All teachers from different day care centers were women. Work experience in Estonia was 3-38 years. All teachers participated voluntarily and signed written contract with research ethical considerations regulated by the Ministry of Education.

Procedure

Semi-structured interview was used. Interview questions were divided into three blocks: questions about *professionalism, quality and sustainability*. In this study, qualitative method was used to aggregate the data handled. Common data collection methods used in qualitative research is focus groups, triads, dyads, in-depth interviews, etc. (Mora, 2010). One of the important strategies to collect the data is to question participants directly about their experience (semi-structured *interviews*). The common instruments used to collect data are interview and observation (Russell & Gregory, 2003).

Seventy five percent of the Estonian teachers in this study had at least Bachelor education and 25% of teachers had higher professional education from a pedagogical school and they worked in Estonian day care centers. Since 2013 all preschool teachers in Estonia must have at least Bachelor education (level 6). The principles for learning and teaching activities are formulated in the Estonian National Curriculum for Preschool Child Care Institutions (Government of the Republic, 2008). Day care centers were chosen from different counties all over Estonia, a third of them from rural day care centers. In Estonia children participate in day care from age 1.5 to 7. Seven-year-old children go to school. In younger children groups (age 1.5–3) there are usually 14–16 children, in older children groups (age 3–7) 18–24 children. Children-adult ratio in the younger children group is 1:8 and in older group 1:12.

The average interview time in Estonia was 63 minutes, shortest interview lasted 41:36 and longest 1:47:40. All interviews were read and transcribed by two researchers and categories were created. We received 128 pages of transcribed interviews. Research was anonymous. All teachers participated voluntarily and signed a written consent form after reading the information sheet and having been briefed on the ethical considerations.

In the Turkish National educational system, while day care centers accept 0–3 years-old children, the preschool institutions admit 4-6 years-old children for education. In Turkey, preschool institutions are mostly female-dominant and comprise 93% female and 7% male preschool teachers, which is very common in studies worldwide (Kabadayi, 2010). There are 1,326,000 preschool children and 77,150 preschool teachers in Turkey

with nearly 19 preschoolers per preschool teacher (<http://egitimsen.org.tr>). The 2006 preschool teaching program was updated and changed in 2013. The preschool teachers are still teaching by taking reference of 2013 preschool teaching program under the auspice of Turkish Ministry of National Education (MNE) (<http://tegm.meb.gov.tr/>).

In this study, 36 preschool teachers currently working in different parts of Turkey participated. 36 participants responded to open-ended questions comprising demographic and research questions. 27 of the teachers had Bachelor and 9 Master of Arts degrees. Twenty one of the participants were 25–29, 10 of them 30, and 5 were 35 years old or older. Twenty five of the participants had 1–9 years' work experience and 11 of them had more than 10 years working experience. All of the participants together had 719 preschool children whose age ranged from 3 to 6-years-old. Interviews were organized in native languages and translated into English by the researcher in Turkey. All interviews were recorded. Authors of this study transcribed all interviews and translated them into English. Authors of the study and their students transcribed and coded the answers. All interviews were transcribed, coded and analyzed by two researchers.

The following questions were addressed to define the professionalism, quality of preschool education and sustainability, and the participating teachers were asked to respond to them as interview question prompts:

If you could choose a profession today, would it be early childhood teacher/educator again or something else?

What does professionalism of preschool teacher/educator mean for you? Please describe.

What are your strengths?

Do you also have some weaknesses as a preschool teacher and how would you like to develop yourself in that area?

What requirements are there for becoming a professional preschool teacher?

What does quality of education in preschool childcare institution mean for you? Please describe.

How in your opinion are professionalism and quality of education related to each other?

What does sustainability of education in the early childhood education context mean for you?

How is professionalism of teachers related to education for sustainability in your opinion?

Data Analysis

Thematic interpretation of the data was used to analysis the interviews. Categories were developed, and each question was subjected to the content analysis technique. Answers were analyzed and scrutinized under certain categories. The opinions of the participants were classified, and the results of the research were marked as explained in the following section.

Results

In this part, the data handled through the open-ended questions are analyzed and the explanations of open-ended questions are provided.

Participants' Reasons for Becoming a Preschool Teacher

Most of the participants prefer to become preschool teachers as they like children and teaching them. Few of them chose to become preschool teachers due to the result of the university entrance exam and its employment facilities. In general, 69% of the participants in Turkey and 87% in Estonia chose the teaching profession intrinsically, while only 17% of them opted for it for external reasons in Turkey and 13% in Estonia.

Participants' Opinion about Choosing the Profession

Sixty seven percent of the participants in Turkey and 80% in Estonia stated that they would choose the same profession again if they had the chance, while others would choose different jobs than teaching.

Participants' Opinion about Professionalism of Preschool Teacher

Turkish participants have a balanced distribution about the meaning of the professionalism from the most to the least and explained the meaning of the professionalism under the different categories as *being experienced, having interaction with children and pedagogic knowledge and being problem solvers*. For the teachers to be professionals 13 participants suggested that the teachers should be *experienced*; 11 participants put forward that the teachers should have *good communication and interaction with children*; 8 of them said that the teachers should have *effective pedagogical knowledge*, and 4 of them stated that the teachers should *be problem solvers*.

For the participants, the preschool teachers have to be really well-prepared and interested about everything and think in complex ways.

Estonian teachers' opinions about professionalism can be scrutinized in different categories: *education and knowledge, values, curriculum, child centered education, competent in child development, children with special needs, problem solving skills*.

For *education, knowledge and skills in specialty, and innovation*, it is important for teachers to follow changes, courses in specialty (Teacher T25, T26, T27, T28, T30, T34 T35, T36, T37), reading scientific pedagogical literature (T21, T22, T36), self-education (T21, T27) self-analyzing skills (T28). The professional competences, adaptation of the modern education methods are also important. Practical skills, how to cope in different situations is also important (T35). Another important point is planning skills, planning the week activities (T22, T27). Teachers would share their knowledge and experience with the parents.

Values as independence, professional development, awareness about rights, commitments and responsibilities, trust, agreements, thankfulness, consideration, empathy, friendliness are emphasized (T27, T30, T31, T35, T36, T37). Teacher should work with children, love children and respect them, understand children, and be able to organize work with children in a group (T18, T21, T27, T30, T31, T32). Teachers also need to care about the children and about their life. Empathy and emotional side of the teachers are also important.

Following national curriculum that gives quite a lot of freedom to the teachers, since they themselves can decide what and how to organize their work (T22, T28, T30, T35, T36, T37). However, some teachers found that young teachers need a more detailed curriculum (T35).

Many preferred a child centered education and child centered learning activities (T18, T22, T31, T34, T36, T37); during the Soviet time, education was more teacher centered (T36).

Teacher should be creative and have good *problem solving skills* (T18, T22, T23, T32).

Teacher should be *competent in child development* and fill the school readiness card (T21, T34, T35, T35, T37). Teacher should be competent in development conversation (T21, T34, T35, T35). Some children have a lack of concentration skills, lack of listening skills, lack of behavioral culture, discipline in day care and teachers should cope with all of them (T28, T29, T31, T36). Teachers should have good ICT skills (T18, T28, T29), and integrated activities are very fruitful (T18, T27, T36).

Teachers should have skills to work with *children with special needs* and coping with children with special needs (T21, T27, T32). Learning through play is also very important (T28, T29). Teachers should like natural sciences, activities in the forest, park, near the sea and river (T25, T26). Professional teacher is also flexible and authoritative (T37).

Participants' Opinion about Their Strengths in Teaching

Turkish participants stated that they had *sympathy on the children, patience in hard times, and a good interaction with children* and an ability to *guide* them and to be *authoritative and experienced* in this order as their strong sides during teaching.

Estonian teachers mentioned the following strengths in their work: music education, baby schools, preparing children for school (T18, T19, T21, T25, T27), individual work with children (T25, T26, T30, T31), understanding children's development (T32, T34, T37), communication with children and parents, listening children (T35, T36, T37), creativity (T22, T32), reading and writing, children's books, reading games (T22, T33), group work, team work (T33, T37), discipline (T28, T29), physical education (T18), work with gifted children (T23) and children with special needs (T35), partnership with parents (T34), environmental education (T27).

Participants' Opinion about Their Weaknesses in Teaching

Turkish participants explained that they were irritated, impatient, emotional, unplanned, and unable to be authoritative in this order as their weak sides of their teaching.

The weaknesses mentioned by Estonian teachers are the following: working with children with behavior problems, children with special needs (T21, T31, T33), lack of teacher-parent partnerships (T23, T34), mathematics activities (T22), art activities (T36), documentation (T30), and ICT skills (T37).

Participants' Opinion about Quality of Education in Preschool Childcare Institution

For 44% of the Turkish participants, quality of education means physical conditions and equipment of the institutions, for 28% it means experienced staff of the institutions, and institution's supporting children and teacher development.

Estonian participants stated that important categories are teachers' education, partnership with school, learning environment, values and value education and communi-

cation skills as follows: pedagogical education of teachers, theoretical knowledge, lifelong learning, play based learning (T18, T21, T27, T28, T29, T34, T35, T37). It is valid for kindergarten and school, partnership with school, school readiness of children (T28, T29, T19, T25, T26, T27, T30, T32). Better professionalism skills are needed to create good learning environment (T27, T30 T36, T37). Creating best learning environment gives education with good quality (T21, T22, T27, T37), values like helping behaviour, social development, trust, benevolence, empathy are necessary (T21, T23, T31, T32), teachers should have good communication skills (T19, T30, T32, T34). Teacher should have wide horizons (T23). Children need recognition and friendliness (T18). Creativity is very important (T23). Partnership with parents is necessary (T35).

Participants' Opinion about the Relation between Professionalism and Quality of Education

Seventy eight percent of the Turkish participants explained the relation between professionalism and quality of education as “complementary of each other”; 14% explained it as “*proficiency and experience of teacher in education, and the teachers' and administrative staffs' collaboration, experienced staff, the institutions being full of love, the institutions supporting development of the children, the institutions supporting the teachers' success* in this order.

Estonian teachers' opinions about the relation between professionalism and quality of education were as follows: professional teacher is opened to new experiences and gives the best quality (T19, T22, T31, T35, T36). Professional teacher is child centred and individual work with every child gives good quality (T18), lifelong learning is vital for teachers. Teacher's task is to offer interesting activities and possibilities to have best quality in teaching (T21), how well s/he works. Value education and creativity in teacher's work are important (T23), through teacher's knowledge and skills we shall reach to the best quality. Learning through play is important (T25 and 26), professional teacher is able to create good learning environment to have quality education in preschool and child care institutions (T30), teacher should understand the situation and start from human perspective (T32), teachers' internal feeling how to do things is important (T33), child development is the most important result in their work. Partnership with colleagues and parents is also very important (T34).

Participants' Opinion about the Relation between Professionalism and Sustainability

Eighty-six percent of the Turkish participants explained the relation between professionalism and sustainability as “*complementary of each other*”; 14% of them explained it as “*the parents' involvement in education*”. Estonian teachers mention the following: professional teacher knows how to use resources in the best way, environmental sustainability, respecting the forest, sea, lake, river, park, animals, birds, and plants, cultural sustainability is also vital. Estonian language and culture are most important. Individual development of children is important (T25, T26). Erasmus and Comenius projects give best possibilities to be professional and sustainable (T30). Offering professional support to parents and parents' trust and partnership with colleagues (T35, T36), professional teacher knows what sustainability is (T35, T36, T38).

Participants' Opinion about the Meaning of Sustainability of Education in the Early Childhood Education Context

All of the participants in Turkey stated that *sustainability of education means the continuation of learning about the teaching process in the institutions* while sustainability means continuation of day care centres. Estonian teachers referred to the economic sustainability, environmental sustainability, cultural environment and national culture in this order.

Discussion and Conclusion

In this paper, preschool teachers' understandings and knowledge about professionalism, quality of preschool education and sustainability in Estonian and Turkish cultural contexts was analysed. These are the contemporary concepts every teacher should assimilate in order to be the active change agent and to encourage changes towards sustainable development when they go to school as teachers.

The result of the study put forward that the participants were intrinsically motivated with their job; and they admitted they had some strong and weak sides in their teaching profession. It was also seen that they had a lack of defining the terms of professionalism, quality of preschool education and sustainability. For example, they defined professionalism in teaching in an ego-centric way, mostly the proficiency of the teachers in action rather than a comprehensive definition including teaching learning processes, parents, environmental conditions, school atmosphere, needs of the students and the society etc. According to reports commissioned by the European Commission (2011) and OECD (2012), the professionalism of preschool teachers is a key factor in ensuring the quality of early childhood education. Studies by Peterson et al. (2016; 2014), that were based on the contextual approach in the bio-ecological theory (Bronfenbrenner 2005) and critical ecology theory of early childhood professionalism (Urban, 2010), have looked at preschool teachers' professionalism in interaction. Chen, Martin, and Erdosi-Mehaffey (2017) found that it is more important than ever that stakeholders develop effective development mechanisms to professionalize the practitioners with knowledge, skills and dispositions to work competently with children to ultimately benefit their learning and development. According to Oberhuemer (2015), two parallel discourses relate to the dynamic expansion of provision of Germany in recent years, to the enhancement of the quality of early childhood centres across the country, and to supporting ECEC settings to work with the challenges of social inequalities more effectively.

Most of the participants in Turkey defined the quality of education as the physical and the quality conditions of the school rather than the quality of the students they would train. In Estonia most important categories were teachers' education, school's partnership with day care centres, learning environment, values and value education and communication skills. The participants should be equipped with the necessary knowledge and prerequisite skills to apply the concepts in question as they are the very important pillars of the development to adjust to the advancement in the World. Duhn, Fleer, Harrison (2016) wrote that it is important to support collaboration between government, early year professionals and communities to work holistically in the best interest of all children and their families. According to Öun (2009), quality is higher in childcare institutions that apply a child-centred approach, and a study by Öun et al. (2014) showed

that the indicators of the quality of the learning environment differed in different preschool groups, whereas spatial conditions of the groups had an impact on several factors.

High quality ECEC is based on high expectations, and requires: Access to ECEC, the ECEC workforce, curriculum, monitoring and evaluation (European Commission, 2014, pp. 10–12). Workman and Ullrich (2017) contented that, for quality early childhood education, there are important professional and stable teacher workforce, effective leadership, age-appropriate curriculum, comprehensive family engagement activities, multilevel continuous quality improvement system, and a sustainable set of funding mechanisms. UNESCO (2014) underlines a growing international recognition of Education for Sustainable Development (ESD) as an integral element of quality education and a key enabler for sustainable development.

Estonian teachers pointed out in the interviews that cultural sustainability is most important because Estonia is very small country and this is a reason why we must keep our culture and language. Year 2019 is a year of Estonian as native language. Very important is also to protect Estonian nature. In 2018, there was a hot discussion about the protection of forests and ideas to build new cellulose factory. Forest protectors won this battle. Last years have been economically successful. Mean salaries grow very quickly, but we have not workforce enough. We must think more about efficiency of work.

Turkish participants defined the term sustainable education as the continuation of teaching learning processes though sustainable development 'is an education that develops critical thinking skills, broad and integrated contextual knowledge and the desire and capacity to apply that knowledge and to provide ways of increasing student's skills for ESD (Sherren, 2008). It was also deduced that the participants had lack of relating between professionalism and quality of education and ESD as they defined them as the complementary of each other, or the parents' involvement in the teaching learning process. It seems that they could not make an effective relationship among the professionalism, quality of education and ESD as they had just a surface meaning of the concepts.

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Changes in Thoughts and Actions as Requirements for a Sustainable Future: A Review of Recent Research on the Finnish Educational System and Sustainable Development

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Abstract

In numerous UN policy documents, a sustainable future through education is set in a key position; the UNESCO Global Action Programme on Education for Sustainable Development (UNESCO, 2018) is no exception. Therefore, it is of great importance to examine and report how different UN member countries work towards the implementation of sustainability at all levels of education. This article is a review of recently published research in Finland, with a focus on sustainability in the educational system. Specifically, the article deals with teacher education, combined with theoretical research around sustainability and systems thinking, to find a pathway forward. The main finding is that higher education in Finland cannot guarantee that student teachers are prepared enough to teach about sustainability. This issue is discussed and addressed in the last part of the article.

Keywords: sustainable development, teacher education, sustainability, Finland, educational system.

Introduction

The second decade of the twentieth century is coming to an end. According to Rosling (2018), the world is a much better place now than 20 years ago, at least in certain areas such as poverty and public health. The line between the east and west is no longer as apparent, nor is the line between north and south or rich and poor. Admittedly, there is still a difference between rich and poor but the proportions and the gap between them is less apparent now than 20 years ago. The largest proportion of the world population today lives in middle-income countries (Rosling et al., 2018). This indicates that the socio-economical part of sustainable development in the world is heading in the right direction. During the last 20 years, public health has improved; child mortality has decreased and the number of children with the possibility to go to school has risen. But there are still areas that need change. Even though poverty has declined, a part of the world population still struggles in their daily lives. More work needs to be done to eradicate poverty (ibid.).

In the latest report from the Intergovernmental Panel on Climate Change (IPCC, 2018), poverty, equity and climate change are discussed as well as the fact that the climate change we are now experiencing will probably exacerbate poverty in the world. Another recently published report on global health and sustainable development by The Lancet Commission (2018) points out that mental health problems have increased all over the world during the last 25 years. During the same period, consumerism has developed as the main focus of societies all over the world (Assadourian, 2013; Bauman, 2007). Although we increasingly consume more to feel well, the interrelation is obviously not that simple (Andersson & Eriksson, 2010). This is a paradox indicating that there must be something wrong in the system. The UNESCO statements below testify about the awareness of this paradox.

“We are faced with a paradox: Is education the problem or the solution in working toward a sustainable future? At current levels of unsustainable practice and over consumption it could be concluded that education is part of the problem. If education is the solution, then it requires a deeper critique and a broader vision for the future.” (UNESCO, 2005, p. 59)

Sustainable development can be achieved but technological solutions, political regulations or financial instruments are not enough. Long-term sustainable development can be achieved only if individuals and societies change the way they think and act. Education is key to achieving this transformation (UNESCO, 2017).

These statements from UNESCO are quite clear, education is the key to sustainability. But education might also be a problem in working towards sustainability. That is why it is of great importance to further evaluate education, educational systems and education for sustainable development and deepen the discussions around the problems and possible solutions. As Fedosejeva, Boče, Romanova, Iliško, and Ivanova (2018) argue, there is a need for a holistic understanding of the sustainability phenomenon in order to develop new perspectives in education.

To obtain a view of the situation regarding education in Finland, this article presents a review and summary of recently published research in Finland, with a focus on the implementation of sustainability and climate change education throughout the whole educational system. In addition, research on Nordic student-teachers' knowledge of biodiversity, species identification and sustainability is reviewed to gain a broader picture of the situation. In this way, it is possible to monitor how the implementation of sustainability in the Finnish educational system is progressing.

Research on Different Educational Levels in Finland

The first research to be reviewed concerns two recent Finnish dissertations on the knowledge of ninth graders regarding climate change. The specific aim of the research was to gain a picture of what the pupils have learned during their basic school education system in Finland.

Degerman's (2016) dissertation implies that both Swedish ninth graders and Swedish-Finnish ninth graders possess misconceptions about climate change as a phenomenon, and show inadequate knowledge of the consequences of climate change. Degerman also found that the students have trouble differentiating between climate change and the depletion of the ozone layer. The students appear to learn how climate change affects

animals and plants, but knowledge on how climate change affects humans and health generally is not satisfying. In addition, knowledge on how climate change affects the students themselves was very low. Degerman states that the students do not understand the human role and dependence on nature.

Another Finnish dissertation (Hermans, 2016) shows that both ninth graders and geography teachers need to develop a better understanding of the background to climate change and the consequences it has for their own living environments. Both students and geography teachers believe that climate change does not concern them, since it only affects people in other parts of the world. Hermans (ibid) found that the geography teachers were motivated to teach their students about climate change, but their lack of subject knowledge and lack of time was a barrier to the teaching. Research on the Swedish educational system also indicates that the teachers' lack of expertise and knowledge are barriers for the implementation of education for sustainable development (Borg et al., 2014). Hermans (2016) also emphasizes that increased understanding does not automatically lead to more environmentally-friendly behaviour. Therefore, other components of action competence and transformational learning also need to be considered in teacher education, in-service teacher training and a school's education on climate change.

The above is an indication that Finnish basic school education has not succeeded in implementing education on climate change to the desired extent. In addition, the fact that a very small part of Finnish primary and secondary schools have developed programmes for sustainability (Pathan et al., 2012) can be of concern, particularly when sustainable development was actually included in Finnish basic education already in the year 2001. According to the decree on the national goals of education and the Basic Education Act: "Students are educated to take responsibility and work together and to promote tolerance and trust between human groups, peoples and cultures. The teaching should also support the development of pupils into active members of society, and they are given skills to function in a democratic and equal society and promote sustainable development" (Wolff et al., 2017, p. 5).

As mentioned earlier, research has been conducted in Sweden and Finland on how education for sustainable development has been implemented in the basic school system. The results show that the teachers lack of expertise and knowledge are obstacles for implementation (Borg et al., 2014; Uitto & Saloranta, 2017). According to Wolff et al. (2017), the problem in the Finnish education system is teacher education, which probably also is the situation in Sweden. Therefore, there is a need to do research on student teachers and their knowledge and understanding of sustainable development, sustainability and systems thinking.

Puk and Stibbards (2012) point at the importance of understanding key ecological concepts to develop an understanding of more complex relationships in natural systems and human systems. Systems thinking is a method of holistic thinking and analysis that promotes the understanding of a system's interrelated parts and how different systems work and affect larger systems (Lewis, Manseld, & Baudains, 2014; Sterling, 2003). Palmberg (2012) has summarized several studies that show that students must realize the importance of species identification and have an interest in nature and outdoor experiences to be able to achieve an understanding of environmental issues and a sustainable lifestyle.

Recent research about Nordic student teachers' views on the relationship between species identification, biodiversity and sustainable development (Palmberg et al., 2017; Palmberg, Berg, Jeronen, Kärkkäinen, Norrgård-Sillanpää, Persson, Vilkonis, & Yli-Panula, 2015; Palmberg, Jonsson, Jeronen, & Yli-Panula, 2016) implies that Nordic student teachers possess low levels of ecological knowledge and species identification. The importance of integrating systems thinking into education has been emphasized in order to promote an understanding of the complex nature of sustainability (Hofman-Bergholm, 2018; Palmberg et al., 2017; WWF, 2016; Lewis et al., 2014; Sterling, 2003). However, according to Palmberg et al. (2017), Nordic student teachers do not seem to develop any form of systems thinking during their teacher education. This leads to research around Finnish teacher education.

Hofman (2012) claims that teacher educators in Finland do not understand the connection between the four dimensions of sustainable development, that is they do not connect the political, economic, social, and ecological dimensions to their teaching. One can even discern a tendency towards a negative attitude regarding sustainable development from the Finnish teacher educators. An alarmingly large proportion of teacher educators believe that sustainable development does not affect them or their teaching. Pathan et al. (2012) conducted a survey showing that higher education in Finland cannot guarantee that student teachers are prepared to teach about sustainability. The need for enthusiastic key persons is still obvious if sustainability is to be promoted in higher education in Finland (*ibid.*).

This leads to the question: What is the problem with Finnish teacher education, a field which is known for its high-performance standards? There are certainly issues that need to be raised if the cause of the problem stems from student teachers not learning how to teach about sustainability during their studies, or failing to develop systems thinking and action competence. Such concerns also apply if the teacher educators themselves do not have the knowledge or interest to teach their students about sustainability.

Why an Exceptionally Good Education Does not Implement Sustainability Successfully

A recently published article, "High Performance Education Fails in Sustainability? A Reflection on Finnish Primary Teacher Education" (Wolff et al., 2017), discusses teacher training in the Nordic countries and especially in Finland. The article identifies five reasons why an exceptionally good education, according to the results of PISA (The Programme for International Student Assessment of OECD), does not successfully integrate sustainability into the education.

These identified issues might also be obstacles for the implementation of sustainability in education or education for sustainable development in other countries as well. To promote quality education and learning for sustainable development at all levels, universities need to overcome these obstacles and become forerunners in the sustainability process (Wolff et al., 2017).

These are five identified issues/obstacles (Wolff et al., 2017): (1) sustainability is in conflict with overall trends in society and politics, (2) teacher education takes place at universities, (3) teacher education is based on separate academic disciplines, (4) sustain-

ability is intricate because it is strongly connected to ecological literacy, and it is (5) value dependent.

Is the paradox with education to be found and solved within these issues? How do we overcome these obstacles so that universities can be forerunners in the sustainability process? These issues will be the focus of the discussion during the following sections of this article. The sections have been divided, based on the identified obstacles mentioned above. After that, one section will be dedicated to a discussion on possible ways to progress forward.

Trends in Society and Politics

According to Wolff et al. (2017), consumerism and mass consumption have grown considerably during the last century. The reasons behind consumerism lie within economies and policies promoting a growing demand for goods during the last decades. This is achieved by policymakers, business leaders and media experts, among others, who have succeeded in shaping values and norms to convince the public that a lifestyle expressed through consumption is the only way to be happy. Today consumerism is a part of human identity (Hamilton, 2010; Wolff et al., 2017). This is the case in large parts of the world. Salite et al. (2016), for example, mention the rapid transition of Latvia into a market economy during the past 25 years as a step towards unsustainability. Education has also become a consumer good and education in Finland is seen as a tool for the economic success of the country. The competitive attitude, largely based on PISA comparisons, has made education in Finland market oriented (Wolff et al., 2017).

The common way to talk about prosperity is to identify prosperity with consumption and wealth (Andersson & Eriksson, 2010). This means that politics, economics and the competition between countries are big issues in the sustainability discourse (Becker et al., 2015). According to Becker et al., there is an issue in current political and public discussions whenever the preservation of the natural basis of life does not receive enough attention. They (ibid.) declare that today's sustainability discussions place far too much focus on the material claims of current and future generations instead of the natural basis of life. The politics of growth must take a step back in favour of a natural basis of life. Studies across countries show that increases in income per capita and happiness levels are not correlated to any great extent (Eriksson & Andersson, 2010) and as *The Lancet Commission on Global Health and Sustainable Development* points out in a new report: the mental health of the world population is getting worse and worse. To enable a sustainable future, it would be crucial that politicians and the whole of society consider the thought about a prosperity without growth as Jackson (2009) suggested.

While education is a very important way to affect people, a much stronger force is represented by economics. Consumption, production, marketing and economics are among the factors affecting development the most. However, the one factor that can largely control or influence the various areas is politics, since it is in the political arena where decisions affecting society and the environment are made. Thus, it is here where change should take place, and the change requires engaged and informed citizens. A deliberative democracy with engaged citizens participating in societal decision-making is an interesting theory that should be developed and tested in practice. This would be an opportunity to transform today's market economic policies and the values forming them (Speth, 2008).

Teacher Education Takes Place at Universities

In Finland and the other Nordic countries, teacher education takes place at universities. As such, the student teachers become well prepared for their future careers and obtain a high-quality education. The problem in Finland, however, is that the universities are autonomous and can decide for themselves where to focus within the education. This means that the leaders of universities will play a major role if education for sustainable development is to be implemented within teacher education in Finland (Wolff et al., 2017; Hofman-Bergholm, 2018).

According to Wolff et al. (2017), Finnish universities have adopted the same values as the business sector. These business ideologies have changed the rhetoric around education, which is now seen as a sales product. This market-oriented agenda stands in conflict with the idea of educating future teachers about sustainability. A lack of time for deeper discussions that are needed to grasp the content of sustainability is also a problem at the teacher-student level. Even though the Finnish teacher education is research based, it is not focused on development or adjustment and it has no critical shade that would be necessary in discussions about unsustainability (*ibid.*).

The fact that teacher education takes place at universities is not a bad thing in itself. The education is highly respected and in Finland the teachers are very well educated. Moreover, teacher education in Finland is popular and only the best students are chosen to become teachers. The problem lies with the universities' lack of a critical attitude towards the social discourse surrounding sustainability.

Teacher Education Based on Separate Academic Disciplines

Universities have been shown to be conservative institutions with strong subject orientations, where interdisciplinary research is still seen as challenging (Wolff et al., 2017; Christie et al., 2013). The complexity and interdisciplinary nature of sustainability makes it very hard to implement in higher education teaching. Teacher education in Finland is based on separate academic disciplines and a traditional school curriculum. This is problematic regarding the importance of a holistic understanding of sustainability in order to develop new perspectives in education (Fedosejeva et al., 2018). The traditional curricula will need reorganization if sustainability is to be seen more as a process rather than a content. In Finland, it is quite common that sustainability issues have been passed to science teachers in biology and geography. Still, the last core curriculum for basic education stresses interdisciplinary teaching and learning to a much greater extent than earlier curricula (Wolff et al., 2017).

It is good that the core curriculum highlights and emphasizes sustainability issues, but that does not overcome the problem of a slow adjustment within teacher education. A strong and motivated leadership working towards implementing sustainability in the universities, and especially in teacher education, is needed to overcome these obstacles in a drive for sustainability.

Sustainability is Intricate

Sustainable development or sustainability is not just an environmental issue. It is a multifaceted interdisciplinary concept which affects our future by including cultural,

social, economic, political and ecological aspects in a complex interplay. These different aspects of sustainable development are interwoven and cannot contribute to the achievement of sustainable development alone. Tackling climate change and cutting emissions is a part of sustainability, as is poverty and equity. Alongside this, there are also other issues, such as economic interests and political interests, that make the topic of sustainability more complicated (McKeown & Hopkins, 2003; Winter & Firth, 2007; Savage, 2006).

Even though the gap between rich and poor is slowly fading (Rosling, 2018), an environmental knowledge gap still exists that makes sustainability less graspable. Ecological literacy is important to bridge this gap, as is a holistic way of thinking and systems thinking (Fedosejeva et al., 2018; Palmberg et al., 2017; Hofman, 2015; Puk & Stibbards, 2012). Here is one example of the intricate nature of sustainability and how systems thinking presents ecological, economic and social aspects as a whole: Emissions of carbon dioxide into the atmosphere result in temperature rises. Temperature rises affect the nature, biodiversity and species. This is seen as flooding and raised sea levels in some areas, and drought in other areas. In the areas affected by drought, the land will become useless, while the water in the oceans will become more acidic, affecting fishermen. As the water temperature rises, devastating storms and hurricanes will become more common. Another consequence of rising temperatures rarely considered concerns life-threatening diseases, such as malaria and dengue fever, which will become more prevalent. In the future, battles over water and cultivation fields will probably be more common, and a consequence of this will be a rise in poverty (Meyer, 2009; Speth, 2008).

As mentioned earlier, one of the main obstacles for implementing sustainability in teacher education is the fact that it is an intricate topic that needs an interdisciplinary approach as well as a developed form of systems thinking that is not possible in a conservative institution (Hofman-Bergholm, 2018). The institutions conducting teacher education need an organizational and substantive change to meet the need for the interdisciplinary work necessary to promote sustainability (ibid.). As Fedosejeva et al. (2018) state, the new generation growing up during the technology age is completely different from earlier generations and they have a completely different perception of the world. This highlights the need for a complete re-organization of the study environment in order to develop critical thinking and creativity among the youth of tomorrow. This will allow them to manage in a culture that is different and unknown to the one we know today (ibid.). The re-organization of teacher education is crucial to cater for this new study environment.

Value Dependent

One must develop an understanding of nature in order to value and care for it properly. It then becomes possible to evaluate how individual actions affect the nature and the whole social system (Grunewald, 2003). In the process of developing both sustainable development and action competence, reflection over personal values and critical thinking is important. The youth need to clarify their own values in the process in order to challenge the prevailing norms and political decisions leading to unsustainability. They need to develop critical thinking to question how society affects the process and, perhaps most importantly, to understand the cause of the current problems and provide a possible solution to these problems (Blewitt, 2008; Grunewald, 2003).

Sustainability education requires opportunities for ethical deliberation and value discussions among the students in order to clarify different sets of values, ethics and morals. This will allow students to learn that there are a lot of different ways to approach problems, and that what seems right from one aspect might seem wrong from another. According to Palmberg et al. (2017), teacher education programmes should include such a form of systems thinking that is based on critical thinking, negotiation and action competence. Sustainability cannot be taught without involving systems thinking. Moreover, systems thinking needs to be incorporated within teacher education, because there is a necessity to develop an educational programme that provides individuals with knowledge on how different actions and choices affect the whole society (Hofman, 2015).

When people learn how their different actions affect systems, their values, ethics and morals become important factors in developing sustainability. Systems thinking starts to be raised by different stakeholders working for a sustainable future. For example, in the WWF “Living Planet Report 2016. Risk and resilience”, systems thinking is mentioned as an important way to help us understand the underlying causes of unsustainable development. Scientists are working on developing a kind of “Earth system perspective” tool for humans to see and understand the complex relationships between human actions and global impacts affecting the natural state of the planet. This “Earth system perspective” could help us to understand how actions and local changes affect different systems (WWF, 2016).

Pedagogical Implications, Some Concrete Suggestions for Implementation

It has now passed several years since the UN Decade of Education for Sustainable Development (2005–2014). Still, the universities providing teacher education in Finland are in no rush to integrate sustainability within their teacher education. The foremost obstacles preventing this are the intricate nature of sustainability (Wolff et al., 2017), lack of time (Borg et al., 2014; Uitto & Saloranta, 2017), expertise (ibid.) and the issue of separate academic disciplines within teacher education (Wolff et al., 2017; Christie et al., 2013). These are the organizational problems that teacher education in Finland needs to overcome, albeit this is probably also the case in other countries’ teacher education. The pedagogical implications are that the education for sustainable development has moved from the content of the education towards the importance of the process, i.e. that the education should be pupil centred to help them develop the student skills necessary to act in a changing society. This means that the subject content in the core curriculum should receive less attention and the teachers’ pedagogical skills and pedagogical tools must be upgraded.

A complete reorganization of teacher education is crucial in order to overcome the obstacles preventing the implementation of sustainability in teacher education (Hofman-Bergholm, 2018). But as re-organizations are often slow in nature, one possible way to kick-start the change is to create a palette of obligatory courses for every student teacher in Finland. These courses could, for example, be: (1) *Concepts of sustainability*, (2) *ecological economics* dealing with consumerism, growth and justice; (3) *critical systems thinking* to develop action competence and (4) a course in basic ecology. This could be a pathway to developing the necessary skills and abilities within student teachers, which

would allow them to develop a comprehensive understanding of the complexity of social systems and how different systems interplay with nature. Nevertheless, a complete reorganization of the teacher education is necessary in order to address the sustainability issues in the long run. In a recent article, Hofman-Bergholm (2018) provides some suggestions on how such reorganization could be done in both countries where teacher education is governmentally regulated as well as in countries where it is autonomous.

In countries where teacher education institutions are not autonomous, the government could intervene and through regulations compel the organizational changes required. In countries where teacher education institutions are autonomous, the change is dependent on university leaders' interests in the issue (Hofman-Bergholm, 2018; Wolff et al., 2017). Here, the countries' Ministry of Education plays a major role because, at least in Finland, there are performance agreements between the Ministry of Education and the teacher education institutions, which means that the Ministry of Education has a chance to exert some pressure on the teacher education institution, if the will exists (Hofman-Bergholm, 2018). The Ministry of Education should also gather all the leaders of teacher education institutions in order to educate the leaders in sustainability issues, education for sustainable development and systems thinking. The goal is to kindle the leaders' interests to these issues in order to promote reorganization (*ibid.*).

Conclusion

Sustainable development, social justice, global warming and climate change are all linked in different ways. And within these different concepts we have economic values, politics, education and knowledge. The main link between these concepts might be their connection to nature and how the ecosystems we all need, and are dependent on, are affected by our actions and choices. If we could learn to understand the nature a little bit better and realise how our choices and actions affect the systems in our environment and society, would we then act differently? The Finnish educational system has failed to develop the students' understanding of the human role and dependence on nature (Degerman, 2016). Nevertheless, education plays a major role in developing the kind of systemic understanding and systems thinking required to comprehend the intricate connections in sustainable development.

Education is the main key to changing people's unsustainable lifestyles. Through education we need to teach a way of systems thinking that every member of society can understand. They can then realise how their choices affect the whole of their society or the entire planet. Nonetheless, the intricate nature of sustainability requires a lot of knowledge among teachers, as is systems thinking education. That is why teacher education becomes a crucial component for our sustainable future. All newly qualified teachers should be educated in sustainability and systems thinking. However, according to Wolff et al. (2017), that is not the situation now. Moreover, as this research implies, a complete reorganization of teacher education is crucial in the work towards sustainability. Here, governments and ministries of education are important actors to promote change. Likewise, the UN could also step in and exert more pressure on member countries to reorganize their teacher education.

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Science of Pedagogy: Theory of Educational Discipline and Practice

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Abstract

The article addresses and provides an introduction to *pedagogy* in its capacity of science and a university discipline in the field of *education sciences*. Nowadays not only teacher education programmes are embedded in theories and follow transitions of *pedagogy*. These have become even more complex, therefore, challenge new discussions in the evolving importance of human relations and transition towards learning-centred *science of pedagogy* to underpin *practice* of competence-oriented education.

Based on the main historical processes in Latvia and along with informative insight into the practices of European universities and research, the article traces the traditional background of pedagogy, the challenging role of philosophy to foster understanding of *pedagogy* as a unique, well-structured science with its object of investigation, which is not being explored by any other science. Alongside the discrete field of education and constantly evolving research, *pedagogy* develops its theories, all-level practices and disciplines within tertiary and doctoral programmes; because of these its changing nature provides sustainability, cause critique and improvements to an extent which is resilient to multiple external forces.

The article highlights some current developments of *pedagogy* as a stable, open-to-diversity and innovative theory to underpin the process of formal and informal education. The understanding of *pedagogy* in its meaning of teacher *philosophy-in-use* leads to a discussion of the constant and changing components of the definition. The intellectual tradition of *pedagogy* has become a phenomenon and notion to be compared and clarified in the context of another phenomenon – *education sciences*. The conclusions remind therefore the benefit of adopting the *science of pedagogy* being a theory and practice of formal education.

Keywords: science of pedagogy, object of investigation, practice of pedagogy, educational studies, education sciences.

The past three decades have been marked by the country's jumping into an unexplored emerging neoliberalism that made stable cultural values meet entirely another system and face a dilemma of altering and defending values or leaving them to be

destroyed. The Latvian government's will is to remove every sign of the previous system on the way to market-driven policies and repeat the traditions of the West countries; "the citation rate and similar indicators currently have very high support from Latvian political decision-makers in education and research, who believe that evaluations based on these measures could help boost the competitive capacity of Latvian scholars on a global scale" (Pipere et al., 2015, 29). This tendency has reduced a part of its constructive power over education – a very sensitive component of the social system, which cannot survive without an appropriate governmental support. The major non-stop reforms forced education to introduce quick solutions and European-like innovations; alongside the progressive lessons learned often elsewhere correct answers have been ill-informed and surface.

Some crucial and speedy changes focused on democratization, knowledge society and competencies appear to be too complicated for un-prepared teachers with some initial vision on how to implement the novel approaches. The characteristic of educational change sits in its strong dependence on sustainable coherence of the whole political, social, economic system. T. Townsend in 2010 (pp. 337–8) reminded A. Toffler's (1971) conclusion on "the 'future shock' to describe the shattering stress and disorientation that we induce in individuals by subjecting them to too much change in too short a time". Latvia's 'future shock' on its way to European space of education alongside uncertainty in global processes and implementation of changes draws teachers into confusion. All this shows signs of a 'post-fact' state of matters when evidence and even arguments are often overleaped in favour of some individuals' positions with 'louder voices'.

EU guidelines for education developments are often interpreted from different perspectives, thus escalating into long-standing debates on the basic approach to the education studies and theories of formal education, which manifests itself in the relationship between *science of pedagogy* and *education sciences*. The real but hardly observable generating mechanisms are guiding human activities alongside actual strategies and these often are difficult to be represented empirically. Consequently, the analysis of these mechanisms and interaction between real, actual and empirical is sensitive in order to explain the results as accurately as possible (Archer, 1995, p. 343). However, a partial, out-of-context and therefore external 'globalization' of the field of education is either inaccessible or remains normative in combination with the cultural context, impedes the work of teachers and the purposefulness of the process. In these mobile situations, a clear theoretical framework is of special importance.

The aim of the article is to highlight the mutual relations between *science of pedagogy* and *education sciences* by providing definition, insight into a comparative exploration, as well as an outline how Latvia has had to accommodate an alternative perspective of *education sciences*.

The dominating method is a theoretical analysis that includes reviewing, analysing and synthesising literature on the theme "in an integrated way such that new frameworks and perspectives on the topic are generated" (Torraco, 2005, p. 356; Hamilton & Torraco, 2013). The theoretical approaches are highlighted by using the statements of the scientists of two groups, those who follow the category of *pedagogy* and those who follow that of *education sciences* to identify overlapping, similarities, differences, and priorities.

Insight into Historical Developments of Pedagogy in Latvia

Since the establishment of the University of Latvia in 1919, by following the principle of establishing a scientific method through research-based studies, *pedagogy* has been developed as a science and the university discipline. *Pedagogy* being grounded in the cultural context of the nation, European vision on the human holistic development, therefore, implies sustainable pedagogical assistance to the whole learner: body, feelings, creativity of mind and spirit in the process of socialization. Scholars, for instance, A. Dauge remind that the learner since early childhood develops his/her own distinctive general human and individual features – physical, mental and social; it is “a matter of head, hand and heart” (1932).

Pedagogical process therefore as a deliberate process of intentional teaching and learning is “a process for living” (Dewey, 1963); based on specific regularities and theoretical assumptions organised process of education has to mediate the learning and developing persons with their environment. Knowledge of education and educational knowledge are complex phenomena that require integrated and updated understanding of humanities and social sciences, including large components of educational practice with the growing amount of knowledge. Therefore, *pedagogy* is interdisciplinary, it functions as the theory or science and teachers’ professional philosophy, academic discipline and practice, meets the general requirements to achieve educational, developmental and educative goals in their integrated quality; and these are in compliance with the integrity of human’s physical, mental and social nature.

The 20th century theory of action in psychology (Leontyev, 1977) added to Dewey’s ‘learning by doing’ has become fundamental for the development of *pedagogy* in Latvia being:

- a) interpreted from pedagogical perspective assumption that a human being develops all his/her faculties through different kinds of activities (Schukina, 1986);
- b) implemented in didactic assumption that spirits and emotions are the centre of harmonious development (Pētersons, 1930).

The concept of many-sided and harmonious development contributed to *pedagogy*, coupled by understanding that development occurs by changing/improving/empowering learner’s learning as an essential activity; the latter, therefore, must be pedagogically designed, organised, and equipped so that the learner is the subject of his/her activity, development and socialization. Teacher’s assistance, cooperation and communication create an appropriate supportive environment for the learner’s many-sided, harmonious, autonomous learning and better achievements in his/her development with growing amount of knowledge; “pedagogic theory is especially about relationships...” (*Dutch academic*, quoted in Petrie et al., 2006, 23). The nature of human development, actually, does not allow for reducing pedagogy to teaching only. Here we have come to the object of the *science of pedagogy* being constant links between learner, teacher, and the content of activities/learning in often specially organised environments; these links manifest themselves in relationships. Now *pedagogy as science* distinguishes between the object of research to be investigated for better understanding of the practical aim or overarching educative goal of pedagogy as a process of teaching-learning.

The core understanding of the *science of pedagogy* in Latvia has developed by overcoming temporal ‘innovations’ in the cultural context and in the main by recognising

some constant values of the classical European conception of *pedagogy* being incorporated from the following groups of sources:

- Values and pedagogical thought developed through ages being inscribed in multiple folk songs (268,815 verses, registered as *The Cabinet of Dainas*, the UNESCO *Memory of the World*) constitute strong cultural and moral component that manifests itself in common and highly respected human attitudes.
- Long-lasting practices, visions and philosophical views on education demonstrate sustainability in constant innovations and are revealed in *pedagogy* since the first school in the Baltic countries in Riga (1211) and organised teacher education (1683).
- Research related to *pedagogy* since the 17th century accentuated the empirical investigations (Dauge, 1929, 99); the rise of anthropology as a science with *pedagogy* sitting within it (Kron, 2001, 27) has formed research at the University of Latvia in 1919 when it became focussed on the holistic essence of pedagogical process by following the humanistic paradigm with the learner's mental development at the core and the empirical approach which followed the paradigm of the natural sciences; *pedagogy* develops scientific research and research-based studies (Hessens, 1929, 124) mainly by reflecting and investigating practices, creating a scientific method, categorization, and developing other essential features of a science.
- Thanks to long-lasting orientation of *pedagogy* towards philosophy and its search for fundamental background assumptions and theories, academic components developed to become part of *pedagogy* in the 19th century (Depaepe, 2002, 363). Philosophy and history have formed the background of many educationists (Husen, 1979); their understanding of *pedagogy* in its theoretical and practical capacity has developed an academic discipline (in tertiary and doctoral programmes); *pedagogy* has stepped beyond just teaching methods to reach the quality of *science of pedagogy* now being a teachers' personal philosophy that manifests itself in their professional behaviours.

Development of *pedagogical practice* follows that of the *science of pedagogy* in the University scholars' research in cooperation with experienced teachers, who have developed theory and pedagogical process with its complex character and traditional culture-oriented education focussed on an individual's overall development as a person (Dauge, 1932). In 1940, the first doctoral theses in *pedagogy* were defended; in 1944 – the Chair of *Pedagogy* was established. Currently four universities run doctoral programmes in pedagogy and three universities have councils for promotion in the *science of pedagogy*.

Holistic nature of the *science of pedagogy*, its clear fundamentally grounded and well-structured theories provide sustainability remaining in constant changes – the only well-structured theory is operational in the field of education. This phenomenon in formal and non-formal education became a focus of discussion in the 1950s, and the contribution of *pedagogy* to human development shifted to that of a mindful agent of development in the 1990s (Fägerlind & Saha, 1989). Learning and teaching as the central actions/activities in *pedagogy* foster the learner's, as well as teacher's development by using the subject matter as a pedagogical tool, while teaching and learning being implemented in cooperation and communication open new possibilities for value and attitudinal exchange as an educative goal. Teachers, or even parents, can hardly influence the learners' views, values, and ideals in a direct way; rather the values coming from the

external sphere can be facilitated and fostered through the learner's actions and communication and by targeted and meaningful development of the learners' self-conducted action. This conception underpins the learner's position of a subject of his/her activities and teacher assistant's role that manifests itself in a transition from learner-centeredness to learner's learning-centeredness. The latter emphasises learner's action/activity/learning being an object of teachers' developmental assistance, which if coupled with respecting learner's individual qualities enables his/her meaningful learning-by-doing (intellectual of physical).

Currently a complex understanding of *pedagogy* is not limited by European borders. The Gordon's Commission in the USA affirms an integrative understanding: "...pedagogy... the central mechanism operative in education... is interactively and transformatively inclusive of assessment, teaching, and learning" (The Gordon Commission, 2012, 1). Distinguishing between the *science of pedagogy* and the *practice of pedagogy* avoids reducing pedagogy to methods of teaching, leads to integrity and educative value of deliberate education in both aspects – as a process and as learner's achievements; this also strengthens the background for pedagogy as a *university discipline*. Lost integrity functions as an obstacle for achieving competencies; these are complex in their nature. Competence-oriented education in organised (formal or non-formal) processes does need clear, stable and strong theoretical background that is provided by the *science of pedagogy*. The latter in Latvia has developed all basic components to function in a capacity of a science and university discipline, it has attributes which need not be borrowed from other sciences (Gudjons, 1995, 33–35). Research is also being successfully developed for this specific area (Pipere et al., 2015).

Understanding Science of Pedagogy

The development of the *science of pedagogy* as a European intellectual tradition has been long and saturated; it has been interrupted by entering of the notion of *education sciences* being a tradition of the Anglophone countries; this reminds that societies live in transmission and education – in constant transformation. Political changes in the early 1990s triggered discussions over the paradigms of education, the essence of *pedagogy* and *education sciences*. It is worth reminding that discussions usually aim at more relevant definitions of the phenomena being discussed. By that time *pedagogy* had already been defined to a certain extent, by accentuating its practical component while *education sciences* are still waiting to be appropriately defined. Several research projects had been supported by the Latvian Council of Sciences and publications released, among them also in the issues by the Academy of Sciences. Here are some of these: pedagogical regularities (Žogla, 1995, 8–10), considerations on the definition and object of pedagogical science (Čehlova & Špona, 2000, 96–98; Žogla, 2000, 20–25); research and sub-branches of pedagogy (Kopeloviča & Žukovs, 2001, 17–19); the definition and state of matters reported at the Department of Humanities and Social Sciences of the Latvian Academy of Sciences (Žogla, October, 2005). A challenging participation in a project on educational studies (2014–2017) conducted by Oxford and London Universities (see: Whitty & Furlong (Eds.), 2017) raised the intellectual tradition of Latvia to a world-class discussion on the essence of *pedagogy* in its three capacities: science, practice and discipline.

Over the past decades, attention to *pedagogy* has been noticeable, and this is evidence of its growing importance and a need to understand the well-structured theory operating in the discrete field of education. Different visions meet by “approaching the notion of *pedagogy* from very different perspectives and conceptual standings” (Waring & Evans, 2015, 26–27): the science, craft and art (Pollard, 2010, 5); “the science of teaching” (Watkins & Mortimore, 1999), “dynamic process, informed by theories” (Leach & Moon, 2008, 6), “multiple interactions which we call *instructional dynamics* – a defining feature of education” (Ball & Forzani, 2007, 529–540).

Recently a wider understanding of *pedagogy* appears in the Anglophone countries, and this inspires, as well as helps describe the understanding, in which neither teaching nor learning alone cover the term *pedagogy*, especially the *science of pedagogy* with its vast and complicated field of investigation. There is a promising comment that “in terms of its European traditions pedagogy entails more than just teaching”, it ... “involves two aspects of learning. The first is associated with what and how students are learning; the second is about the teacher as a learner. Thinking about pedagogy in this way helps to highlight teaching as an educative process for both partners in their relationship rather than a set of technical skills” (Loughran, 2010, 36–37). The Thomas Coram Research Unit of London University investigates pedagogy and argues that children and young people are being seen as persons in their own right, rather than as ‘problems’ to be managed (Petrie et al., 2009, 3–4).

Pedagogy as practice appears when two people with entirely different actions, these of learning and teaching are involved by the program/curriculum; *pedagogy as science* and its theoretical framework are needed to create a coherent process that is adjusted to the learners’ needs. Teachers and learners follow different aims and motives, use different background knowledge and tools, and still their attempts have to be met. This ‘joint venture’ allows for transitions from a normative to a learner learning-centred process with the learners’ meaningful participation in creating, conducting and evaluating the process where the learner has to achieve; that is leading to learners’ autonomy in learning and development, as well as to teachers’, learners’, parents’ and other stakeholders’ overcoming the growing complexity and transferring their way of thinking. Only specialists identify that real accomplishments of a pedagogical professional philosophy towards humanistic process, as well as objectives and tools chosen by teachers and adopted by learners appear when the formal *inclusion* of the both grows into a meaningful *engagement*.

Learners’ engagement in classroom and school, university or kindergarten settings with organised cooperation and communication happens when teacher’s assistance actualises the learners’ need for significant activities to accomplish assignments or chosen activities, when *academic goals* obtain meaning for learners and they *achieve* new or improve their personal qualities; here sits the object of the *science of pedagogy* to create adequate mutual relations that initiate a transition in teacher and learner understanding from rather generalised *outcome-oriented* process to learner *achievement-oriented* pedagogy.

In the Latvian traditions, the *practice of pedagogy* creates and the *science of pedagogy* investigates *inner dynamic links* between teacher, learner and the content in social, deliberately organised integrative settings where teacher’s and learner’s activities and communication are mutually dependent, their orchestrated actions and communication lead to the learner’s autonomy. Teacher’s and learner’s reflection and self-evaluation add to the achievements of the both, as well as to the educative value of the process.

Research, therefore, attempts to detect pedagogical regularities in diverse settings and confront the criteria that confirm the constants, find not only a synthesis between *pedagogy* and the ever-changing disciplines that relate to it, but also to transform or translate the theoretical assumptions of these disciplines into pedagogical notions when two responsible people, the teacher and learner, analyse, co-construct the pedagogical process and co-operate on a basis of solidarity (Klafki, 1990, 95).

Debates and disagreements over the form, content, and control of educational knowledge are central to understanding the discipline (Furlong, 2013); the new teacher education “rests on a multidisciplinary theoretical framework...” (Cochran-Smith, 2005, 3); it exists in transitions and therefore needs a key juncture. All this knowledge and understanding, pedagogical professional thinking and the ability to operate professionally should be learned by teacher students; the essence of a quality *university discipline* exists in a research-based transition from *acquiring the profession* to a self-directed *creating of professional competencies*.

J. J. Piaget’s and L. Vygotsky’s theories have been well-known since the 1930s and used to underpin the investigations towards understanding the *practice* and *science of pedagogy*. The theory of the ‘zone of proximal development’ was especially productive for *pedagogy* as a teacher’s philosophy-in-use: learning always precedes development and ‘pulls along’ the learner’s experience (Vygotsky, 1978). This concept highlights where the learner’s autonomous learning slows down due to his/her limited possibilities and how assistance can speed it up, empowering further learning by addressing his/her experience, preserving its developmental and motivating value, and by doing so creating the dynamic links within a pedagogical process. These links are needed for personalization of the process and self-regulation that leads to learner’s holistic development.

Teachers usually in classrooms and pedagogues in other social settings provide pedagogical provision by following the same pedagogical regularities; therefore, the *science of pedagogy* that underpins the *practices of pedagogy* should be considered common for teachers, pedagogues and other professionals in the sphere of organised education. Therefore, pedagogy as a *university discipline* can be found in programmes, for instance, of nurses and doctors. *Practice of pedagogy* is sensitive towards diversity and commonalities in human development; therefore, common theoretical assumptions and practical strategies are adjusted to the current needs of the learners, peculiarities of the situation and new possibilities, like those of IT, commonalities become individually different and manifest themselves in learner’s activities. Therefore, four sub-systems of digitally mediated action (Blayone, 2018) are considered relevant:

- a) relating to building and maintaining *human-machine pairings* – meta-functional, technical and operational;
- b) *mediating cultural expression* addresses internalization and externalization largely determined by rules and values of participating communities;
- c) *automatization of actions* by reducing them to formal procedures (algorithms) run by a machine;
- d) the most complex sub-system addresses *digitally-mediated collaboration*.

This novelty needs to be pedagogically equipped in its three capacities – theory, practice, university discipline by undergoing further transition from individualization of organised pedagogical processes to personalized ones.

Meanwhile, discrete notion of *education sciences* occupies a large area of human activities; and only pedagogy and educational management are developed in the capacity

of science. Besides, the *science of pedagogy* (theory and practice of formal education) cannot be fully identified with the *education sciences*, since it can only be one of these; the term of *education sciences* is too often used in limited aspects and outside scientific contexts. For instance, the government's regulations mix up these two categories within one and the same document (Saeima, 1999, 2012). The government also points to the growing dominance of PISA as a powerful tool:

- a) to initiate and justify the educational developments by comparing figures related to education;
- b) to use its technical capacity for the national indicators for benchmarking and initiating further educational changes. PISA and OECD projects are conducted in Latvia under the title of *Education Sciences*; these investigations are highly informative and seldom produce theories, at least by projects conducted in this country.

If compared to other fields of human activities, methods or strategies of pedagogy cannot be precisely repeated even in similar situations. This leads to the opinion that *pedagogy* is an art. In these cases understanding of theories and constant regularities are helpful. Multiple meanings and nuances of situation-dependent pedagogical actions, being based on complex knowledge, ceases when these no longer make sense to the learner and why interaction between learners and between learners and teachers stops (Hörster, 1998, 35–36). Teacher's action consists of the mediation between the proper configuration of subject content and the structured learning activities which the teacher has designed for the learners (Jank & Meyer, 1994, 81) leaving space for the learners' self-evaluation and autonomous choice.

To conclude on the core features of pedagogy, D. Bell's assumption seems to be very relevant: Typically, transformational pedagogy is seen to include the following features: action-oriented; inquiry-based and systems-based learning; integrated, holistic approaches; creative use of technology (2016, 52).

The following definitions reflect an understanding of *science* and *practice of pedagogy* and are suggested for discussion:

Pedagogy is an integrated humanistic and social science which investigates regularities of combined and unique, focused on the content of learning interactions, communication and mutual relations that occur in this process and constitute a specific research object.

Pedagogical practice is mainly represented by organized pedagogical processes which are created on the background of pedagogical theories and specifically aim at achieving an educative goal (audzināšana). Realisation of this deliberate goal occurs through internal, dynamic connections activated by targeted, organised, goal-oriented educational processes, which transform mankind's intellectual and cultural values into the meaningful educational, developmental and educative content to facilitate the acquisition of these values by participants of the process and to foster their personal development and self-actualisation (first published in Žogla, 2017).

Science of pedagogy constitutes teacher's philosophy-in-use (Hessens, 1929) and manifests itself in *practice of pedagogy*. Teachers like any other professionals have to cover their *university discipline*, and that is science and practice of pedagogy – the theoretical background for teachers' pedagogical thinking and creating their professional

competence. The core functions of the *university discipline* usually represented by a cluster of study subjects are as follows:

- a) to provide students with possibilities of creating teacher's strategic knowledge; understanding of the essence and development of humans lead to pedagogical regularities for appropriate integrating teaching, learning and the subject-matter/content and initiating a congruent pedagogical process towards the learners' engagement in the highest quality of learning together;
- b) to develop students' ability of selecting appropriate pedagogical tools adopted by learners; these address and challenge the learners' diverse and developing needs in changing situations, growing amount of knowledge and possibilities provided by the digital environment;
- c) to facilitate teacher's professional integrity and identity that manifest themselves in building relationships on the foundation of communication and collaboration with the learners by treating them as a whole developing person.

Education Sciences and Pedagogy Compared

The term of *education sciences* continues occupying the space of education, especially when new documents are being prepared. Actually, these make a variable group of related to education sciences, as well as selected parts of sciences transformed or otherwise modified for the learners' needs (for inst., anatomy is of special interest of sports coaches, history of music – for singers etc.). The group is changeable, and *education sciences* can be classified according to their relations to the process of obtaining education:

1. *Pedagogy* – theory and practice of formal and non-formal (organised) education. It has developed general pedagogy and its sub-branches with two common essential features: (a) the object of investigation is dynamic links between the learners, teachers and the subject-matter with teacher-learner mutual relations in the centre; (b) the data are analysed according to pedagogical criteria, which are denoted by the dynamic links. *Science* and *practice of pedagogy* exist and develop by elaborating its theory, methodology, profession and tertiary programmes, rigorous scientific method of investigations, international cooperation of professionals and research, professional working area, history, tertiary educational institutions to obtain professions, discipline of universities and colleges.
2. Essential parts of *pedagogy*, especially in Anglophone countries are considered *Education Sciences* – lesson planning, lesson design, strategies/methods of teaching, evaluation etc. These items can be investigated and appropriate object of research defined, but they will have lost their value if not related to the pedagogical process as a whole: target, learners' and teachers' activities, mutual relations, priority of self-evaluation and achievements – all what the *science of pedagogy* deals with as philosophy-in-use, as well as investigates the educational process as a system.
3. Pedagogical disciplines related to the pedagogical process, contextualized or integrated in the *science* and *practice of pedagogy* constitute the core part of teacher educational programmes, including those that aim at working with learners with different special needs and specialised goals.

4. *Education sciences* consider and incorporate many other sciences, which in a way are related to some important areas of education, for instance, educational psychology, education policy, educational philosophy etc. Actually, these branches of sciences investigate their specific object located in the area of education and analyse data according to their specific criteria. These can only inform pedagogy and the field of education about some of its contexts, but will never solve specific for pedagogy problems or those of the process of obtaining education, therefore, will never function instead of pedagogy be it a science, practice or academic discipline.
5. Targeted branches of sciences or technique which are acquired by the learners in an organised process by using specific methods of teaching-learning belong to the *subject didactics* (by non-professionals often hastily considered as an old-fashioned notion). Any branch of sciences – be it literature, biology or any other – whether offered to learners authentic or transformed into a subject matter for their acquisition (transformed according to stable and developing didactic principles into the content to be learned) become a pedagogical/didactic reality and category and add to the learning content. Thus, other sciences and practices designed as a formal setting for the learners' knowledge creation, development of skills and attitudes can be called *education sciences*. In reality, these sciences being transformed to learning/study content are thus turned into a pedagogic category of content and become a component of a pedagogical/didactic process.
6. *Context sciences* are also transformed and integrated into the aims, content, methods/strategies, evaluation and therefore belong to the process of teaching-learning or *practice of pedagogy* (for instance, history, economy, literature etc.). Their functions within the programme are denoted by their relations to the target academic education or degree and/or qualification being obtained by students. Curricula or programmes are comprised of many branches of sciences and technique to be acquired, they belong to the content and cannot be called *education sciences*; these simply cannot be in this capacity without pedagogical modifications.

Instead of Conclusion: Why Adopting Pedagogy

Pedagogy – science, practice and discipline – has been developed as a holistic, personalised system to assist learners or work with children, young and even elderly people (also called *Andragogy*) in formal and non-formal educational settings in the majority of European countries – Germany, Austria, Poland, Greece, Scandinavian countries etc. A pedagogue's ability of generalising and adjusting interventions is popular also for enterprises: the *science of pedagogy* provides an overarching system that could bring greater coherence to educational services. It provides a framework for discussing and adopting aims, activities and evaluation of achievements for learners at any age as it deals with general constant regularities of a pedagogical process.

Qualifications and degrees in pedagogy are popular due to its clear structure and system of theories being in non-stop research-based development; the graduates report their acceptance of pedagogy in European countries in different spheres where relations among people dominate as a value for their pedagogical skills that make them well-

equipped, flexible and stable workforce across a wide range of services, as well as governmental and non-governmental institutions (mentors for novices or refugees, nurses, trainers, coaches etc.). Pedagogy has the potential for an inclusive, integrating and engaging approach due to its core functions and clear internal system of notions, which allows for coherent mutually related actions of teaching and learning based on communication, cooperation and mutual relations. Inner constant regularities of a pedagogical process provide congruency that is among the basic criteria for research, action-based and process-orientated educational provision; the background theories of humanities allow for value exchange.

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Emotional Competence and Individual Style of Action of Future Teachers of Higher Education in the System of Education for Sustainable Development

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Abstract

The article presents the results of a study of emotional competence and individual style of action of students – future teachers of higher education in the system of education for sustainable development (EDS). The theoretical analysis of the application possibilities of the system (ideas) of EDS is performed. The study highlights a number of competences that are consistent with the components of emotional competence and individual style of action. The study involves 20 students of pedagogical specialties from Almaty, Kazakhstan. The components of emotional competence and individual style of action are investigated using self-assessment questionnaires. The article presents the answer to the question of whether there are stable links between the components of emotional competence and individual style of action as well as draws conclusions on the importance of developing emotional competence in the EDS system.

Keywords: sustainable development, education for sustainability (EfS), students of pedagogical specialties, emotional competence, individual style of action, study engagement, empathy.

The Research in the System of Education for Sustainable Development

To ensure a sustainable, peaceful, prosperous and fair life on the Earth for all people at present and in the future, on 25 September 2015 the UN General Assembly adopted the 2030 Agenda for Sustainable Development that outlines the goals and objectives of a new approach to the organisation of education for sustainable development.

The concept of **sustainable development** refers to the relationship between nature and society; the contradictions of the natural and social environment; the growing needs of man, and the natural, economic, socio-cultural possibilities of the environment to satisfy the needs of a human being. The theories of sustainable development are based on: (1) the ideas of V.I. Vernadsky about the transformation of humanity into a geological

force that can lead to global changes in the biosphere and destroy the very foundations of human life if society does not move to a new stage in its development driven by reason, science of the laws of the interaction of nature and society, their conjugate development without catastrophic consequences (noosphere); and (2) the ideas of N.N. Moiseyev about society as a self-organising, continuously evolving system that is characterised by a regular mismatch between the spiritual and material worlds and the role of ecological culture in resolving this contradiction.

All researchers agree that sustainable development has three interrelated and interdependent components: (1) sustainable social development (equality of people and social justice); (2) economically sustainable development (maintenance of material, human and cultural capital); (3) ecologically sustainable development (people's well-being is ensured by the preservation of raw materials and the environment (Bonnett, 1999; Mazurov, 2005; Education for Sustainable Development in Action, 2010).

At present, the proposed area of sustainable development has a lot of difficulties for its implementation to a full extent. This paradigm is more oriented towards the future and is a dream for humanity. Difficulties are related to the fact that people, in general, are not ready to accept the ideas put forward, because at present even the inhabitants of highly developed countries are more engaged in economic survival rather than personal development and self-improvement. The ideas of the introduction of environmental consciousness are unlikely to elicit a response in the broad masses, since the regulation of production and state resources is in the hands of national, supranational elites and corporations. Theoretically, any person is for not having environmental disasters on the Earth. But not always there are resources and opportunities to influence production activity, for example, of town-forming factories. The ideas of justice and equality of peoples cannot be implemented, since the dominant market world lives on the basis of expansion, capture of resources of less developed countries and peoples. That is why, and due to many other reasons, the ideas of sustainable development are somewhat of theoretical speculation (reasoning) and cannot find a way to practical and concrete implementation. Our world is too heterogeneous, diverse in the social, economic, moral and cultural level.

Moving away from global conditions and problems, one can take a specific area of application of the ideas put forward, where it is possible to begin applying the concept of education for sustainable development. This area lies in the sphere of higher education of students – future teachers.

Education for sustainable development (ESD) at higher education institutions involves the transition from a focused professional education in the environmental, economic, geographic and other spheres to an economically and socially oriented model of learning that involves broad interdisciplinary knowledge based on an integrated approach to the development of society, economy and environment (Sadovnichy & Karasimov, 2006).

At its 57th session (2002), the UN General Assembly, in pursuance of the provisions of Agenda 21, declared the years 2005 to 2014 the decade of education for sustainable development. Resolution 57/254 adopted by the UN General Assembly formulates the key objectives of the Decade: (1) to facilitate the transition to sustainable development; (2) to emphasise the leading role of education in the realisation and understanding of sustainable development; (3) to promote interaction and collaboration among all stakeholders in ESD; (4) to promote the quality of teaching and learning; (5) to develop strategies for implementing and enhancing the effectiveness of ESD at all levels.

To accomplish these objectives, it is proposed to use the following strategies: ESD policy development, comprehensive consultation, partnership development, professional development, support for scientific and methodological research and innovative approaches, information dissemination through information and communication technologies, monitoring and evaluation.

Education for the sake of sustainable development, expanding the concept of environmental education, makes it possible:

- to develop and strengthen the ability of individuals, groups, communities, organisations and countries to have their own judgments and make choice in favour of sustainable development;
- to contribute to changing people's views, giving them the opportunity to make our world safer, healthier and more prosperous, thereby enhancing the quality of life;
- to ensure formation of critical thinking, awareness raising of the population, as well as to expand the possibilities, develop new approaches and concepts for the implementation of sustainable development ideas (Fedorov, Vasiliev, & Blinov, 2012).

In education for the sake of sustainable development, the following learning goals are set:

- to learn to think (formulation of analytical questions, critical and systematic thinking, problem solving, orientation to the future);
- to learn to do (application of knowledge in various life situations, resolution of crises and risks, responsible actions, self-esteem);
- to learn to be independent (self-confidence, self-expression, interpersonal skills, and stress management);
- to learn to live and work together (responsibility, respect for others, cooperation, participation in the democratic process of decision-making, negotiation and consensus-building) (Fedorov, Vasiliev, & Blinov, 2012).

Education for sustainable development aims at creating a new perspective on the habitat through the prism of interrelations among nature, economy and culture, as well as ensuring that these interrelations exist at the local, regional, national and global levels. Thus, the main characteristics of **education for sustainable development** are the following:

- the focus on complex relationships between environmental systems and economic structures;
- the process based on the development and implementation of projects for local communities involving students;
- the opportunity for learners to learn, solving problems, critically analysing diverse points of view;
- the integration of various educational disciplines (mathematics, natural sciences, technology, art), integration of traditional and innovative study programmes (environment, multicultural interaction, globalization);
- the training method through discussion and dialogue, identification and coordination of diverse interests, comprehensive assessment of controversial topics and complex decision making;
- the use of environmentally sound technologies (Fedorov, Vasiliev, & Blinov, 2012).

The solution to this problem is currently being carried out through an intensive search for a new model of education that would be consistent with the goals of future civilization. In 1993, UNESCO established the International Commission on Education for the 21st century (chaired by J. Delors), whose work proceeded from the fact that the main goal of the 21st century education was the survival of humanity (ibid.).

For the first time, the study aimed at generalising the problems of teacher education for sustainability was presented in the article by A. Pipere, et al. (2015) "Developing Research in Teacher Education for Sustainability". The article provides an analysis of research in the field of pedagogical education to ensure sustainable development through publishing the *Journal of Teacher Education for Sustainability (JTEFS)* from 2005 to 2014. According to the researchers, only 17% of the articles have devoted attention to the issue of pedagogy and training in the sphere of sustainable development during this period of time.

One of the problems associated with this sphere is that most universities dealing with the problem of sustainability are universities that focus on education rather than on research. Strong research universities tend to pay less attention to both education for sustainable development and sustainability, in general (Wals, 2013).

The field of education in the sphere of environmental education and sustainable development has already attempted to identify the explanatory force of this approach. In the case of *JTEFS*, the members of the ISE (the organisations that founded the *JTEFS*) have focused their attention on holism in their research and practice, which allowed them to use this approach in the philosophical vocabulary. The implementation of wicked discourse in several theoretical studies suggests that this new theory has a strong potential for educational research for sustainability that needs to be further developed and enriched with compelling empirical evidence; however, it seems that due to some critical moments for this theory, this could take quite a lot of time.

Much less research has been devoted to the study of behavioral change and lifestyle of teachers–pupils, in-service teachers or pupils for purposes of more sustainable choice. The integration of ESD into in-service training has been valued more at the level of local action research than in comparative global research. Youth participation in the sphere of ESD has been studied only in a few articles.

According to A. Pipere, et al. (2015), research in the sphere of teacher education for sustainability requires more multidisciplinary and multicomponent approaches and in-depth multi-institutional studies. Furthermore, to develop this sphere there is a need for more extensive comparative studies, which will provide system-wide and policy-oriented evidence, despite the fact that it is difficult to collect.

Studies in the sphere of sustainable development of future high school teachers suggest a comprehensive, systemic, holistic, and activity approach.

The systemic approach allows integrating and systematising knowledge, eliminating redundancy in the accumulated information, reducing the volume and enhancing the visibility of descriptions, reducing the subjectivity in the interpretation of mental phenomena. It helps identify gaps in knowledge about specific objects, discover their incompleteness, identify objectives of further research, and sometimes forecast the properties of objects, information of which is missing, by extrapolating and interpolating existing data.

The complex approach is inseparable from a holistic approach and complementarity of this approach is now known as wickedness that has already entered studies that are

looking for a more holistic or just holistic research framework to solve contemporary wicked problems (Lewin, 1999; Mitchell, 2009; Morin, 2008; Norman, 2011; Waldrop, 1992; Wells, 2013).

Broader perspective of the framework is considered in terms of a complex approach. Complex processes are non-linear, completely unpredictable. They cannot be solved at once; the humanity is solving them continuously through diverse activities. In the case of a complex approach, the understanding of processes is explained as the development of open, adaptive evolutionary dynamic processes that manifest themselves as fluctuations of the qualitative states which may lead to changes in the quality of the system that is related to changes in the direction of development processes (Fedosejeva et al., 2018).

Goals of holistic pedagogy are as follows:

- As the main goal, the concept of “holistic school” envisages upbringing in the spirit of social inter-personal skills, intelligent and responsible attitude to oneself, surrounding people and nature, the formation of a cultured, free and positive-minded person.
- Specific educational objectives of the holistic school include: the most complete development of the knower, love of truth, flexibility of thinking; arming with knowledge, abilities and skills from the standpoint of the principle of integrity, reflected in thinking, feelings and actions; care for strengthening spiritual and physical health of a person; the harmonious development of the individual, i.e., the equivalent development of athletic, craft, social, artistic, intellectual and ethical abilities; the formation of life-affirming social openness, responsibility and readiness to participate in the creation of a free and democratic system; preparation for life in harmony with nature, development of environmental consciousness, formation of respect and love for life, etc.
- Clarification of links between various facets of human experience: (1) linear thinking and intuition; (2) relation between the mind and the body; (3) relation with objects; (4) relation between a person and society; (5) relation with the Earth; (6) relation with oneself.

At present, public support for implementation of the EDS goals has increased, but the state of society – human relations have remained under the dominant influence of anthropocentrism, egocentrism, and apparent technocentrism. Unfortunately, this is not the only influence that exists in human relationships (Fedosejeva et al., 2018).

The present study examines the obtained results from the standpoint of a holistic approach as consideration of the main holistic focus of the development of components of emotional competence and individual lifestyle. The obtained results show a cross-section of the actual situation of development of one participant of the study and as a whole.

In the pedagogical education, in relation with the increased dynamism of the educational environment, forms of education for sustainable development become increasingly topical: a teacher is obliged to work on their education all their life, and this requires a higher personal and professional development of a teacher. Therefore, emotional competence and individual style of action (ISA) can be viewed as factors in the ESD system. Forms of ESD can be represented by continuing education and non-formal education (self-education).

Emotional Competence as a Development Factor in the System of Education for Sustainable Development

Emotional competence in the ESD system is one of the main factors of development of professional and personal life of a person. The concept of competence is directly related to the meaning that it characterises. The generalised concept of competence encompasses social meanings that appear and function in society, ensure the normal functioning of a man and the interaction of people with each other in such a society.

Competence is a specific ability, which allows effectively solving typical problems, difficulties that arise in real situations of everyday life, production and social activity. Competences in their conceptual content include knowledge of what and how, i.e., means and methods of interaction (Schevchenko, 2008: 326).

Competence consists of a large number of components or competences, many of which are relatively independent, some components relate more to the cognitive field, and others to emotional; these components can replace one another as components of effective behaviour (Raven, 2002). According to A.G. Bermus: "Competence is system of unity, integrating personal, substantive and instrumental features and components" (Kostrova, 2011).

Competences in the ESD system are the following:

- *Forecasting competence* implies the ability to understand and evaluate several scenarios of the future – possible, probable and desirable; creating one's own vision of the future; the application of the precautionary principle; the evaluation of consequences of actions; the ability to cope with risks and changes.
- *Regulatory competence*: the ability to understand and reflect the norms and values underlying human actions, as well as to discuss goals and objectives in the context of conflicts of interest and compromises, uncertainty of knowledge and contradictions.
- *Strategic competence*: the ability to collectively develop and implement innovative actions that provide additional sustainability at local and higher levels.
- *Cooperation competence*: the ability to learn from others; to understand and respect the needs, prospects and actions of others (empathy); to understand, to show sentiment and to be sensitive to others (empathic leadership); to deal with conflicts in the group; to contribute to the joint resolution of conflicts and problems on the basis of cooperation.
- *Critical thinking competence*: the ability to question norms, practices and opinions; to reflect on one's own values, actions; to take a stand in the discourse of sustainability.
- *Self-awareness competence*: the ability to reflect on one's own role in the local and global communities; to constantly evaluate and further motivate one's own actions; to realise one's own feelings and desires.
- *Integrated competence in problem solving*: the ability to apply different frameworks to solving complex sustainability problems and finding viable, comprehensive and fair solutions that contribute to sustainable development, integrating the competences described above (Education for Sustainable Development Goals, 2017).

Competence is a characteristic that is given to a person as a result of an assessment of how effective their actions are to address certain difficulties or problems that it characterises. The present study examines emotional competence, i.e., the competence associated

with the effective and efficient possession of the emotional sphere of the personality of both one's own and another person. The concept of emotionality defines the essence of manifestation and possession of emotions. In this context, the term "emotion" implies not only the possession of all the basic emotional spectrum that is presented in the scientific literature – seven basic emotions: interest, happiness, sadness, anger, fear, disgust, surprise – but also all the feelings arising from these emotions that also actively influence the state of the person.

At present, the importance of emotions and emotional components (feelings) in the objective format of the process of professionalization and practical professional activity is insufficiently revealed. The importance of emotionality and emotional support to the processes of activity is determined in many pedagogical studies. Indifference, excitement, joy, anxiety, apathy, and boredom are a characteristic of explicit or implicit processes of human activity that affects professional productivity and vitality. From the perspective of modern science, emotions and their various combinations act as an activating means of regulating human actions. L. Festinger, K. Lewin, S. Covey, P. Berger, T. Luckmann identified the conditions and factors of the emergence of emotions of a social nature and their functions in human activity. Works of P.K. Anokhina, S.L. Rubinstein, P.V. Simonova, B.I. Dodonova, V.V. Boyko, V.D. Shadrikova, G.H. Shingarova, V.N. Druzhinina, E.P. Ilyina introduced new approaches to examining the nature of emotions and their influence on human activity.

The concept of emotional competence proposed by I.M. Yusupov and G.V. Yusupova (2009) is used as a methodological foundation of the study.

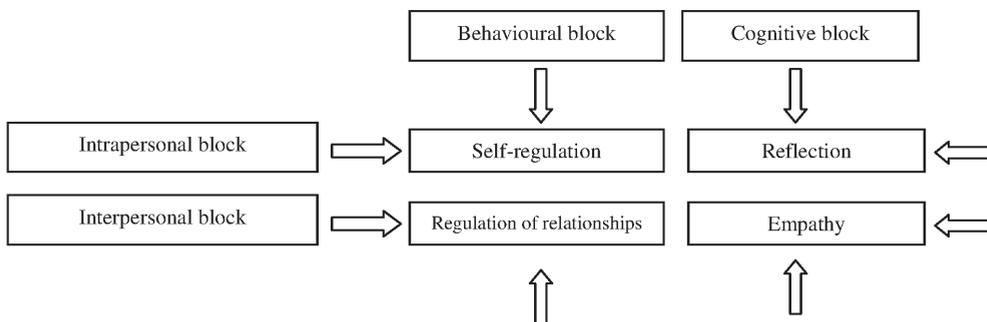


Figure 1. Functional blocks and basic components of emotional competence

The authors study emotional competence as a professionally important quality of a specialist that can be developed in the course of professional activity, and define it as a group of developing abilities for self-regulation and regulation of interpersonal relationships by understanding their own emotions and emotions of others.

Individual Style of Action of Students – Future Teachers

A professional educator always has brilliant uniqueness, individuality that is expressed in their style of action. Concept "style" is used to characterise the identity of an individual, ways of behaviour and action. Style is a stable form of self-determination of a person, a form of expressiveness of action, an acceptable form of action, an external manifestation of personality in action.

In modern pedagogical theory and practice, the problem of the formation of an individual style of action, which includes both the feeling of one's own health and the directions of the student's individual development, takes one of the priority places. The problem of understanding of the individual style of action falls directly into two semantic contexts of modern pedagogy: the formation of a healthy personality and the development of individuality identified as priorities of state policy in the field of education in Kazakhstan.

Individual style of action is an active concept used in research that includes a stable system of ways of action, which is conditioned by certain personal qualities. This system is a means of effectively adapting to objective requirements. In other words, the individual style is a unique system of psychological means, to which a person deliberately or spontaneously resorts in order to best balance their (typologically conditioned) individuality with the substantive, external conditions of their action (Klimov, 1982).

When mastering the individual style of action, a system is created that compensates or can overcome the negative influence of any individual properties. Therefore, entities with different or opposite properties can achieve approximately the same efficiency. The person him/herself (both consciously and unconsciously) creates his/her own style. The following prerequisites are needed to develop an individual style of action: (1) the existence of a "zone of uncertainty" of action, i.e., existence of several equivalent programmes that achieve ultimate goal through various operations and intermediate goals within uniquely determined boundaries; (2) the presence of active motives (ambition, interest, increase in earnings, positive attitude to action, protection of one's own personality, etc.), i.e., the desire of the entity to choose such an individual system of components of action (movements, operations and intermediate goals), which most closely corresponds to their features and, thanks to which, the greatest possible success for their action is achieved (Merlin, 1986).

The individual style of action reflects the unity of external and internal directions of the individual, of their activity, behavioural and value components. Each person has not only an individual style of action, communication, behaviour, but also a different combination of types of action, unequal productivity. It forms a different attitude to the same activity at different stages of its implementation, perceiving it either as a target or as an instrumental action that determines the uniqueness of lifestyle. Each style is a means of adapting a person to concrete realities of the external or internal world at a certain level, and the combined effect of their interaction forms an integral way of adaptation and transformation of the personality to the world (Vilensky, 2007).

The study examines the individual style of student's action. One of the components of assessment of an individual style of action is the level of students' own health. The life activity of a person depends on the state of health and the sense of one's own physical potential. As at present strict requirements are imposed on graduates of higher education institutions, their creative longevity and high professionalism are possible only in case of good health. One of the most important tasks of modern education is preservation and maintenance of students' health (Zhiginas & Semke, 2009).

The individual style of action is considered through the implementation of the following vectors in life: (1) strategic vector that indicates the ability to plan one's own action, to set life goals, and to achieve them; (2) prosocial vector – indicates the ability to adapt in the system of interpersonal relationships, maintain and establish social contacts; (3) I–vector that indicates the ability to abandon one's own point of view and insist on one's own claims; (4) creative vector – indicates the development of creative

abilities in different areas of art and culture; (5) spiritual vector – indicates the attitude to the moral values that are accepted in society; (6) intellectual vector – indicates the development of intellectual abilities; (7) family vector – indicates the attitude to the family values that are accepted in society; (8) humanistic vector – indicates the development of altruistic abilities (ability to provide support, empathy, and sympathy). The individual style of action is constantly being improved and subject to change. Development of an individual style of action is possible in the ESD system of thorough training.

Interrelation of Components of Emotional Competence and Individual Style of Action with Competences in the ESD System

Components of emotional competence and individual style of action are consistent with competences in the ESD system. Figure 2 shows the theoretical analysis of interrelation between the ESD competences and the components of emotional competence and individual style of action.

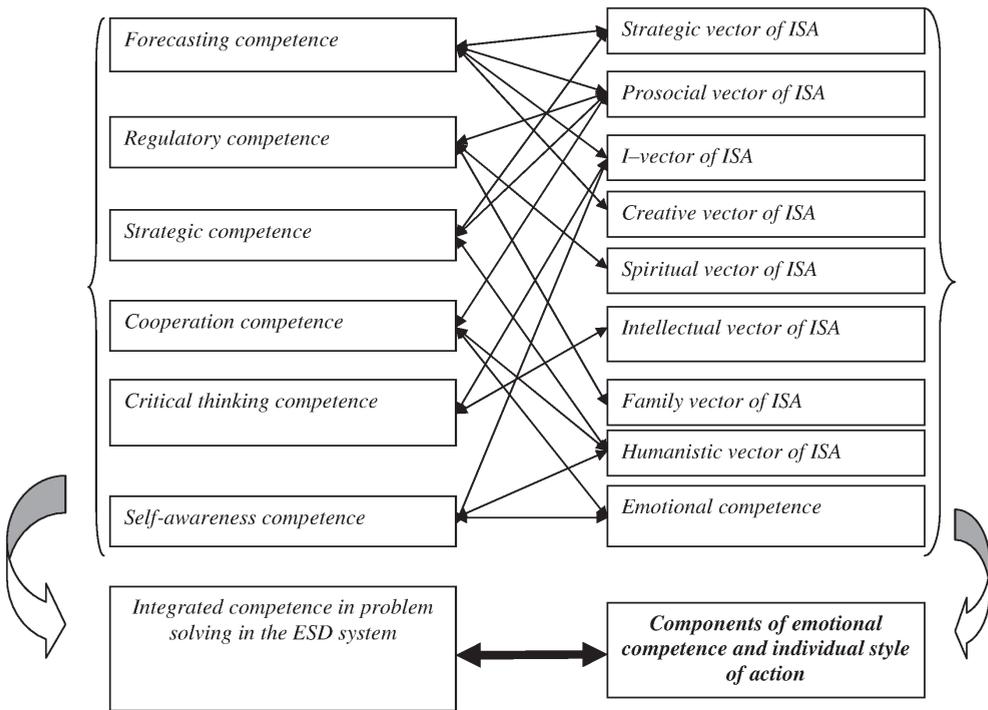


Figure 2. Scheme of the relationship of emotional competence and individual style of action in the ESD system

Figure 2 shows that the level and development of emotional competence and individual style of action can take place in the ESD system. Forecasting competence is combined with strategic, prosocial, creative and I-vector of an individual style of action. Regulatory competence is combined with the prosocial, spiritual and family vector of the individual style of action. Strategic competence is combined with the strategic, prosocial and humanistic vector of an individual style of action. Cooperation competence is combined with

the strategic, humanistic vector of an individual style of action and emotional competence. Critical thinking competence is combined with the I-vector and the intellectual vector of the individual style of action. Self-awareness competence is combined with the I-vector, humanistic vector of the individual style of action and emotional competence. The work of students in the ESD system can contribute to the development of creative and self-organised action. Students, as part of a programme of emotional competence development, can learn to understand the complex world in which they live. They can successfully develop cooperation and act to make positive changes.

Methodological and Theoretical Assumptions of the Observational Research

The development of research in the field of ESD mainly takes place in the field of theoretical studies (Salite et al., 2009; Pipere et al., 2015; Salite et al., 2016, etc.). To transform the ESD principles into a practical plane, a number of quantitative studies are needed to analyse the current state of students – future teachers by the components of emotional competence and individual style of action. In fact, it is necessary to perform an analysis of the results of direction of the development of emotional competence and the individual style of action in order to understand the current state of students. Therefore, the systemic approach is the basic methodological prerequisite for research as an opportunity to analyse and systematise the obtained data. In the process of analysing the choice of components for the study of emotional competence and individual style of action, an integrated approach is used, which allows selecting the necessary components for describing the basic parameters of the research.

At present, there are few studies in Kazakhstan that would study the development of emotional competence and individual style of action among students–teachers in the ESD system. The concept of ESD in Kazakhstan is not yet sufficiently studied. Before going deeper into the qualitative analysis of the components of emotional competence and individual style of action and elaborating a development programme within the framework of ESD, it is necessary to understand the general situation of development of professionally important qualities of future teachers. Therefore, the present study is predominantly of quantitative character in order to provide a basis for general ideas about the student environment.

The results of the study will become the basis for further research of emotional competence and elaboration of the programme of development of emotional competence in the ESD system.

Aims, Tasks, Subject and Object of the Research

The study aims at examining the characteristics of emotional competence and individual style of action in the ESD system among students–future teachers. The question has been raised whether there are stable links between components of emotional competence and the individual style of action of students–teachers of higher education. Within the study, three tasks have been set: (1) to assess the emotional competence of students–teachers of higher education; (2) to assess the features of the individual lifestyle of students–teachers of higher education; (3) to study the relationship between components of the individual style of action and the emotional competence of students–teachers of higher education.

The object of the study – students of pedagogical specialties at higher education institutions of Almaty, Kazakhstan.

According to the methodological approach to the study of emotional competence proposed by I.M. Yusupov and G.V. Yusupova (2009), the components of the emotional competence of diagnostic methods can be distributed as shown in Table 1.

Table 1
Components of Emotional Competence

	Behavioural block	Cognitive block
INTRApersonal block	Self-regulation 1. Dedication (energy, enthusiasm, absorption) 2. Managing one's own emotions (Hall)	Reflection 1. Emotional awareness (Hall)
INTERpersonal block	Relationship regulation 1. Managing other people's emotions (Hall)	Empathy 1. Empathy (Hall) 2. Empathy (Yusupova) (Empathy to parents, animals, elderly people, children, heroes of works of art, unfamiliar people) 3. Understanding of other people's emotions (Hall) 4. Recognising the emotions of unfamiliar people (Hall)

Table 1 shows that the behavioural block “Self-regulation” includes the scales: “Enthusiasm for learning” (vigour, dedication, absorption) and “Managing one's own emotions” (P. Hall). The behavioural block “Regulation of Relationships” includes a scale: “Managing other people's emotions” (P. Hall). The cognitive block “Reflection” contains a scale: “Emotional awareness” (P. Hall). The cognitive block “Empathy” comprises scales: “Empathy” (P. Hall); “Empathy” (Yusupova), “Understanding the Emotions of Others” (P. Hall), “Recognising the Emotions of Unfamiliar People” (P. Hall).

Research Design and Participants

The study, which took place in September 2018, involved 20 students in pedagogical specialties from Almaty, Kazakhstan. They were aged 18 and 25 years (Md = 23 years; SD = 2.2 years). The respondents comprised 3 men and 17 women who were not married and did not have their own children. Five students had secondary education and were pursuing a Bachelor's degree, 15 students had a Bachelor's degree and were enrolled in Master's degree programmes. All students did not have their own children and pedagogical experience. 11 students had experience working with children, and 9 students did not have such experience.

The study was anonymous and confidential.

The following diagnostic methods have been used:

1. Individual style of action:

1.1. “General Health Questionnaire” (GHQ-12), according to D. Goldberg, in the adaptation of A.A. Volochkova, A.Yu. Popova (Goldberg, 1978).

GHQ-12 has 12 questions, the answers to which the respondent gives according to a 4-point scale: 0 – “certainly not”, 1 – “probably not”, 2 – “perhaps yes”, 3 – “certainly, yes.” High scores (characterising the pole of mental discomfort) correspond to affirmative answers to those questions that reveal manifestations of psychological distress, emotional instability, and negative answers to those associated with the expression of positive emotions, psychological stability (they are evaluated in the reverse order).

Points for answers to questions 1, 3, 4, 7, 8, and 12 are calculated in the reverse order. From 0 to 8.5 – a high level; from 8.6 to 27.5 – an average level; from 27.6 to 36 – a low level.

1.2. *“Individual Model of Psychological Health” developed by A. V. Kozlov (2014). It includes 8 scales: strategic vector; prosocial vector; I-vector; creative vector; spiritual vector; intellectual vector; family vector; and humanist Vector (Kozlov, 2014).*

The method consists of 86 statements, which offers two possible answers: “Yes” and “No”. The Individual Model of Psychological Health is standardised, which allows comparing the results of the respondent with other tests and recommending the method for use by practical psychologists.

2. Emotional competence:

2.1. *The Utrecht Work Engagement Scale (UWES-S) developed and approved under the guidance of V. Schaufeli (Schaufeli et al., 2002). It includes three scales: vigour, dedication, and absorption.*

Analysis of the survey results according to the UWES-S scale allows obtaining an integral indicator of the formation of the “absorption” parameter, as well as studying its structure and measure of the severity of structural elements among various categories of students. The UWES-S scale consists of 14 questions; 5 questions are related to the “vigour” component, 5 – “dedication”, 4 – “absorption”. In terms of the wording, the Russian language version of the UWES questionnaire has been taken as a basis; however, in accordance with the research by V. Schaufeli, a similar terminological replacement has been made: “work” has been replaced by “study, occupation”.

The respondents evaluate how often they experience this or that experience in relation to their studies according to a 7-point scale from “never” (0 points) to “every day” (6 points). Next, the average for each scale is calculated, and the severity of each of the three scales is determined. A high level of all three scales determines dedication. The integral indicator of dedication is calculated as the average value for all three scales.

2.2. *The Method of Diagnosis of Empathy by I.M. Yusupova. The method includes 6 diagnostic scales of empathy, expressing attitudes towards parents, animals, elderly people, children, heroes of works of art, friends and unfamiliar people.*

Empathy is the emotional response of a person to the experiences of other people, manifested both in empathy and in sympathy. When empathising, the emotional response is identical to what and how a particular person experiences; this is only possible if one imagines oneself in the place of the experiencer. With sympathy, an emotional response is expressed only in a sympathetic attitude towards a surviving person or a suffering animal. The experiences of a sympathetic person and their manifestations can be very diverse. When assessing empathy as an individual psychological characteristic, it is necessary to take into account factors that most affect emotional sensitivity and features of emotional response, such as gender, age, emotional experience, social attitudes, etc. Empathy is characterised by the fact that it can arise and manifest itself with great force

not only in relation to people (animals) who actually exist, but also depicted in works of art of literature, cinema, theatre, painting, and sculpture.

The questionnaire contains 6 diagnostic scales of empathy, expressing attitude to parents, animals, elderly people, children, heroes of works of art, friends and unfamiliar people. In the questionnaire there are 36 statements, for each of which the respondent must assess the extent to which s/he agrees or disagrees with the statement using 6 answer options: “I don’t know”, “never or not”, “sometimes”, “often”, “almost always”, “always or yes”. Each answer has a numerical value: 0, 1, 2, 3, 4, and 5. The authors of the research have made minor adjustments in the process of processing the results. This is due to the fact that when calculating the total number of points, the “average level” has a very large range of values (37–62 points); therefore, the “average level” has been divided into three levels: “below the average” (37–45 points), “average” (46–54 points) and “above average” (55–62 points). These adjustments have made it possible to more accurately measure and assess changes in the level of empathy of the students of the experimental group.

2.3. Method of Identification of Emotional Intelligence by N. Hall in the modification of G.V. Rezapkina (2001) (Fetiskin, Kozlov, & Manuilov, 2002).

The method is designed to measure emotional intelligence, which is understood as the ability to understand the relationships of a person, represented in emotions, and to manage the emotional sphere on the basis of decision making. The scale of emotional intelligence (EI (H)) consists of 5 subscales: emotional awareness; managing emotions (rather, emotional reflection, emotional non-rigidity); self-motivation (rather an arbitrary control over one’s emotions); empathy; recognition of other people’s emotions (rather, the ability to influence the emotional state of other people).

Research Findings and Conclusions

Description of the results obtained by the components of emotional competence and individual style of action are presented in Tables 2 and 3.

Table 2
Mean and Standard Deviations of Parameters of Individual Style of Action

Scale	Denomination	Mean M	Standard deviation SD
GH	General health	12.5	6.0
SV	Strategic vector	6.1	1.7
PV	Prosocial vector	6.1	1.8
I-V	I-vector	4.9	1.3
CV	Creative vector	6.4	2.1
SV	Spiritual vector	6.0	2.4
IV	Intellectual vector	7.6	2.2
FV	Family vector	6.6	2.5
HV	Humanistic vector	4.9	1.9

Table 2 shows that the students’ general health is in the range of average values with a tendency to high values. This means that students rate their general health as

good: they can well focus on solving problems and make right decisions, get enough sleep, and often feel happy.

The levels of the strategic, prosocial, creative, spiritual, humanistic vectors are in the range of average values. Level of I–vector tends to the area of low values. Students have problems with expressing their own point of view, argumentation, the ability to defend their opinions and to correctly explain them. Often there is a desire not to fight, and there is a desire for passivity, conformity. The level of the intelligent vector is in the region of high values. Respondents have a very good level of intelligence that helps them in the study process. However, heightened intellectual abilities can often lead to neurotic personality and emotional breakdowns.

Table 3
Description of the Study Sample by the Parameters of Emotional Competence

Scale	Denomination	Mean M	Standard deviation SD
Vig	Vigour	3.5	0.9
Ded	Dedication	4.2	1.1
Abs	Absorption	3.9	0.9
IMA	Integral indicator “dedication to studies”	3.8	0.8
EMV	Empathy to parents	9.8	2.4
EMDZ	Empathy to animals	6.2	2.7
EMP	Empathy to the elderly	7.9	2.1
EMB	Empathy to children	9.8	2.8
EMHM	Empathy to the heroes of works of art	7.6	2.5
EMNC	Empathy to unfamiliar people	8.3	2.7
VLEM	General empathy	49.5	10.6
EIZ	Emotional Awareness	10.4	3.3
JEV	Managing one’s own emotions	4.3	7.3
PM	Self-motivation	9.1	5.9
EM_H	Empathy	10.5	3.3
ACCE	Recognising other people’s emotions	10.1	3.5
EL_H	Emotional intelligence	44.3	17.8

Table 3 shows that the level of dedication to studies in this sample is in the range of moderate values. However, the level of vigour, dedication and absorption tends to decrease. In general, it should be noted that dedication to studies tends to decrease.

The level of empathy is in the area of average values. The level of empathy to parents, animals, and heroes of works of art tends to be low. The level of empathy to children and unfamiliar children tends to be high. However, the overall level of empathy tends to be low.

Levels of emotional intelligence scales are also in the range of average values. All scales and the general scale of emotional intelligence tend to be high. Participants of the study rate their emotional intelligence above average. Perhaps because young people do not know their emotional capabilities and have not yet worked with children, since teachers in similar studies show very low values of emotional intelligence.

Study of Relations of the Components of Individual Style of Action and Emotional Competence

To analyse correlations, the Spearman's rank correlation criterion has been chosen, since most measurement scales differ from normal distribution according to the Kolmogorov–Smirnov criteria in the Lilliefors' modification, Shapiro–Wilk and “asymmetry and kurtosis” criteria.

Table 4

Table of Relations of Components of Individual Style of Action and Emotional Competence

	GH	SV	PV	I-V	CV	SV	IV	FV	HV
Vig	-.563**	.375	.368	.106	.546*	.216	.100	.234	.384
Ded	-.541*	-.012	.130	.368	.372	.052	-.202	.407	.252
Abs	-.669**	.103	.198	.309	.405	-.144	-.171	.278	.134
IMA	-.613**	.180	.278	.275	.531*	.064	-.041	.347	.287
EMV	-.405	.415	.149	-.127	.169	.538*	-.277	.418	.531*
EMDZ	-.128	-.094	-.143	.322	-.131	.325	-.322	.299	.194
EMP	-.382	.596**	-.013	.067	.513*	.721**	.055	.593**	.384
EMB	-.550*	.597**	.471*	.247	.587**	.725**	-.113	.635**	.673**
EMHM	-.326	.281	.415	.050	.487*	.620**	.131	.487*	.564**
EMNC	-.565**	.360	.402	.529*	.724**	.216	.111	.422	.312
VLEM	-.603**	.572**	.297	.273	.673**	.692**	.012	.713**	.563**
EIZ	-.487*	-.186	.506*	.468*	.605**	.244	.154	.456*	.304
JEV	-.778**	.227	.184	.250	.250	.189	-.280	.158	.280
PM	-.796**	.056	.274	.504*	.208	.368	-.472*	.413	.325
EM_H	-.531*	.577**	.339	.244	.659**	.675**	.058	.660**	.498*
ACCE	-.665**	.307	.278	.336	.621**	.186	-.044	.431	.417
EI_H	-.930**	.249	.434	.519*	.629**	.386	-.179	.556*	.465*

** . The correlation is significant at the level of 0.01 (2-tailed).

* . The correlation is significant at the level of 0.05 (2-tailed).

1. Relation of the Component of Individual Style of Action as a Level of General Health and Component of Emotional Competence as Dedication to Studies

Table 4 shows that the component of individual style of action, as a level of general health, has stable links with all scales of dedication to studies. (Low values of general health (GHQ-12) correspond to an excellent state of health. Therefore, the presented relations are negative). An excellent level of general health allows students to gain strength from their learning activities, show enthusiasm in their studies, and indulge in the learning process. Feeling healthy is steadily associated with passion for study. Conversely, there is a strong link between feeling unhealthy and the loss of interest in learning, energy reduction, lack of enthusiasm and detachment.

2. Relation of the Component of Individual Style of Action as a Level of General Health and the Component of Empathy (Yusupova's Questionnaire)

Statistically significant relations have been found between the level of general health and empathy to children and unfamiliar people. These components of emotional compe-

tence have influenced a stable relation with the general scale of empathy (Yusupova's questionnaire). An excellent level of general health allows students to demonstrate empathic abilities in relation to children and unfamiliar people. Perhaps because the entire sample of students is not married, while others, unfamiliar people and children, as a subject of their future profession, arouse an increased interest among students. Conversely, there is a strong relation between feeling unhealthy and the low level of empathy to children and unfamiliar people.

3. Relation of the Component of Individual Style of Action as a General Level of Health and Component of Emotional Competence of Scales of Emotional Intelligence

A positive assessment of one's own health is consistently related with all scales of emotional intelligence (Hall's questionnaire). A satisfactory level of health contributes to emotional flexibility, the ability to control one's own emotions, to motivate oneself to achievements, to be in harmony with one's mood, to calm oneself and to find an emotional balance, to feel one's emotions and to understand other people's emotions. The unsatisfactory level of health can lead to the neurotization of an individual and to insensitivity to one's emotional sphere and, accordingly, to insensitivity to the emotions of other people. In conjunction with a high level of intellectualization, it can exacerbate neurotic symptoms and lead to quick emotional fatigue at work, especially in the "person-to-person" sphere.

4. Relation of the Component of Individual Style of Action (Kozlov's Questionnaire) and the Component of Empathy (Yusupova's Questionnaire)

The general level of empathy has shown a steady relationship with the strategic, creative, spiritual, family and humanistic vectors. A high level of empathic abilities contributes to the ability to tune oneself into a working mood, to be calm in a nervous situation and find the right solution, to fulfill promises, to easily switch from various activities, to take a balanced view of the opinions of people and to build one's own activities according to goals. Poorly developed empathic abilities give the nervous character of human life. Often there is an inability to focus on the main thing, there are difficulties in solving important problems, difficulties in switching attention. Excitement, impatience, the desire to do everything quickly, dispersion can appear (Strategic vector).

A high level of empathic abilities contributes to a creative approach to life: the ability to find a hobby for the soul, to get involved in a variety of creative arts, to enjoy beautiful things and nature. Poorly developed empathic abilities concentrate the person's attention on their personal, egoistic, even egocentric (possibly neurotic) problems and do not create a need for creative expression (Creative vector).

A high level of empathic abilities in a person develops faith in God, fate, love, attention to moral, non-material values. Weakly developed empathic abilities are centred on materialistic, rational values. (Spiritual vector).

The high level of empathic abilities contributes to the importance of family values. Person understands the importance of the family as the main life support. Weakly developed empathic abilities consider family relationships from the benefit of the family to an individual. In case of loss of benefits, this relationship will not have any values and can be terminated (Family vector).

The high level of empathic abilities promotes attentive and merciful attitude to other people. It promotes condescension and ability to forgive, to treat with understanding the errors and miscalculations, as anyone can make mistakes. Weakly developed empathic

abilities concentrate on personal, egoistic, egocentric needs, therefore it is very difficult for such people to take another person's position, to understand and forgive them (Humanistic vector).

It is of interest that in the present study there have been no stable relations observed with the intellectual vector. It can be explained with the fact that the emotional and intellectual spheres are not interrelated in the students' assessments. Sustained relations between the strategic vector and empathy to the elderly and children have been obtained. Perhaps this is due to the special attention to the elderly and children in Kazakhstan. A steady relationship has been found between the pro-social vector and empathy with respect to children. For future teachers it is important to build relationships with children.

Strong links have been found between I-vector and empathy in relation to others, unfamiliar people. It is possible that in a situation where a person is not familiar, it is easier for students to express their personal view on those or other problems, and to show their individual abilities in defending their opinions, using empathic abilities.

Strong links have been identified between the creative vector and empathy with respect to the elderly, children, heroes of works of art and other people. Well-developed empathic abilities to the most diverse segments of the population contribute to the development of creativity.

Strong links have been identified between the spiritual vector and empathy to animals, elderly people, children, heroes of works of art. It is not surprising that the spiritual vector of development is associated with empathy to animals. Animals are defenceless against humans and do not bring any material benefits, like the elderly and heroes of works of art.

Strong links have been identified between the family vector and empathy to the elderly, children, heroes of works of art, perhaps because the older generation in Kazakhstan is often the centre of the family, and children have family ties.

Strong links have been identified between the humanistic vector and empathy to parents, children, and heroes of works of art. The humanistic position of compassion and mercy causes warm, empathic feelings towards parents, children, and heroes of works of art.

5. Relation of the Component of Individual Style of Action (Kozlov's Questionnaire) and the Component of Emotional Competence of Scales of Emotional Intelligence

The general level of emotional intelligence is consistently related to the I-vector, creative, family, and humanistic vector of the individual style of action. Empathic abilities (Hall's Questionnaire) are consistently related to the "I-vector", creative, spiritual, family and humanistic vector of the individual style of action. The creative vector of an individual style of action is consistently related to the ability to recognise the emotions of other people. For the pedagogical profession, this is a very important link because teachers have a creative aspect that occurs in relationships with people.

A negative stable link has been obtained between the intellectual vector of the individual style of action and self-motivation. This means that the higher the intellectual vector is developed, the more difficult it is for a person to motivate him/herself to solve life problems. It can be explained by the fact that often superfluous intellectual abilities contribute to the egocentric position of the individual and do not allow for the development of a person's emotional sphere, leading to neuroticism.

The level of self-motivation is consistently related to the I-vector of the individual style of action. The ability to be aware of one's personal position and one's opinion on one or another problem contributes to the ability to motivate oneself to achieve one's goals. If a person cannot explain and represent his/her point of view to other people, s/he has problems explaining to him/herself why exactly s/he needs to set goals.

The level of the emotional awareness scale is consistently related to the strategic, prosocial, creative, family vectors and I-vector of the individual style of action. A high level of emotional flexibility and the ability to regulate one's own emotional states are consistently associated with development vectors that indicate strategic life planning, the ability to build relationships with people, creative abilities, family values and the ability to express their personal viewpoint. Emotional rigidity, insensitivity interfere with the active development of aspects of the individual style of action and lead to a person's egocentric position.

The level of the scale of recognition of other people's emotions is consistently related to the creative vector of the individual style of action. The creative aspect of individual development is associated with interest in other people, which is very important for future teachers.

Conclusions

The results of the study have demonstrated the importance of developing emotional competence for future teachers in the ESD system. Self-assessment questionnaires have been used, which are known to be subject to various distorting factors, such as social desirability, influence of underdeveloped self-reflection and self-understanding. Furthermore, young people can rate their capabilities more highly than they really are. In this sample, all students do not have the experience of pedagogical work with children, and are not married. Perhaps these factors have shown that they rate their abilities in emotional competence more highly than they actually are.

Notwithstanding the foregoing, the results have demonstrated that there is a strong link between the components of emotional competence and individual style of action. It should be noted that the students have shown rather high indicators in terms of intellectual vector of the individual style of action. Intellectual abilities are a prerequisite for successful study at the university. However, no significant relations between them and the components of emotional competence have been obtained. That, perhaps, may indicate an excessive level of intellectualization, which can lead to neurotization of the personality and emotional fatigue, when students are involved in the pedagogical process. There is a stable relation between excessive intellectualization and a low level of development of the personality's emotional-volitional sphere. Intellectualization in the process of life is manifested as self-justification. This is a kind of defensive tactics in the interpretation of both one's personality traits and actions. Intellectualization acts as the neutralization of unwanted emotions in a rational explanation of all one's actions, which should always look socially desirable, even if in fact they are not. In fact, excessive intellectualization offers to be a man right in everything. Therefore, the development of emotional competence offers harmonization of the intellectual component of development.

It is necessary to explore the intellectual aspect of students' development using the method of diagnosing defense mechanisms "Life Style Index" by R. Plutchik and H. Kellerman, which effectively diagnoses the level of human neuroticism.

The results of the study have shown the need for the development of emotional competence in the course of study at a higher education institution. Students should have an idea of their emotional capabilities, understand the situation when symptoms of emotional overwork can appear and develop an individual style of work.

The conditions of education for sustainable development imply constantly developing and improving emotional competence. A high level of intellectual abilities without an actively developed emotional sphere can cause difficulties in the development of sustainable education, as it is a prerequisite for the neurotic development of the personality. The neurotic personality is not capable of showing an altruistic, holistic view of the world, as it focuses on the egoistic perception of the world, on the social distance between people. It causes difficulties in the personality's development and strengthening of making choice in the interests of sustainable development. Difficulties arise when creating conditions for improving the quality of life.

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Attitudes toward Pillars of Sustainable Development: The Case for University Science Education Students in Jordan

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Abstract

The primary aim of the study is to determine the attitudes of science education students at a public university in Jordan toward sustainable development. The validated instrument has been applied to a sample of 198 university students taking science education classes. Descriptive analyses have been used to analyse the data collected. Results of the study indicate overall positive attitudes toward three pillars of sustainable development (economic viability, society, and education). However, students' attitudes toward the environment as a pillar of sustainable development are negative. The study offers recommendations for theory and practice.

Keywords: sustainable development, environment, society, economic viability, education, university students.

Introduction

The concept of sustainable development has become a top priority for local, regional, and global organisations and countries with an emphasis on sustaining the present for the benefit of future generations. Sustainable development should be a normal practice for everyone in the world, including business organisations, the university system, families, and government agencies. The importance and usefulness of sustainable development relies on the increasing interest in three pillars of the United Nations Educational, Scientific and Cultural Organization (UNESCO) encompassing economy, society, and environment (Michalos et al., 2012; Olsson, Gericke, & Chang Rundgren, 2015; UNESCO, 2005). This highlights the interdependence of economy, society, and environment locally and globally to meet the needs of the present and the future (UNESCO, 2009).

However, the fourth pillar named “education for sustainable development” was later emphasised by Biasutti and Frate (2017) as equally important pillar of sustainable development. The role of education is emphasised strongly in global frameworks such as Chapter 36 (UNESCO, 1992), United Nations' Decade of Education for Sustainable Development (2005–2014) and the Global Action Programme on Education for

Sustainable Development (post-2014) where it is considered crucial for improving the capacity of people to address sustainable development issues equally to the other components of sustainable development (Olsson et al., 2015; UNESCO, 2014).

Moreover, education is viewed as an empowerment tool that can help people achieve sustainable development and make important judgments and choice in favour of environmental protection, economic viability, and social justice for present and future generations (Barth, Godemann, Rieckmann, & Stoltenberg, 2007; UNESCO, 2013). It can enable people to make the world safer, healthier, and more prosperous (Council of Ministers of Education Canada, 2010).

Education for Sustainable Development

Sustainable development was first introduced in the United Nations' Brundtland Commission in 1987 known as "Our Common Future". According to the Brundtland report published by the World Commission on Environment and Development (WCED), sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their needs" (WCED, 1987, p. 43). In spite of this attention and recognition of the importance of sustainable development, there is growing evidence that many nations are not pursuing development tactics that are sustainable into the future (Meadows et al., 1992). Based on that premise, a conference on environment and development was held in 1992 by the United Nations to accelerate the move toward sustainable development through improving the capacity and maximising the potential of people through education to address sustainable development issues (UNCED, 1992).

It has been asserted in the literature that the university system can be considered the main contributor to the sustainable development of a society through reducing their environmental impact and increasing their social impact (Barth & Rieckmann, 2012; De la Harpe & Thomas, 2009; Dickson et al., 2013; Godemann et al., 2014; James & Card, 2012). The university system can also play an important role in developing students' knowledge, skills, and attitudes (KSA) needed as global change agents to promote, create, and shape a more sustainable future for the world (Kelley & Nahser, 2014; Mcmillin & Dyball, 2009; UNESCO, 2009; Wiek et al., 2016).

Kabadayi (2016) and Sterling (2012) emphasised that the university system has the responsibility to provide graduates with the needed KSA and understanding that can be used now and in the vague future to be considered as change agents of sustainable development. Thomas (2005) argued that the main responsibilities of the university system were to produce graduates with a high degree of sustainable development. Based on that premise, education for sustainable development (ESD) has been provided by universities to help students act as local and global citizens with regard to social, economic, and environmental issues (Tingey-Holyoak & Burritt, 2012). Thus, the university system can aid in solving many of the issues that face a human being to reach a sustainable future.

In this regard, the United Nations established a special United Nations Decade for Sustainable Development (UNDESD) where everyone has the opportunity to gain knowledge, skills, and attitudes from education and learn the principles, values, and practices needed for sustainable future (James & Card, 2012; Pipere, Veisson, & Salite, 2015). The Reorient University Curricula to Address Sustainability (RUCAS) project

was incorporated within the university system in 11 European and Middle Eastern universities, one of which was Jordan representing part of EU-Tempus initiative. The purpose of the project was to infuse principles of sustainable development in several university courses from colleges of education, economics, engineering, social sciences, and applied sciences (Kostoulas-Makrakis & Makrakis, 2012). As part of the project, the faculty members were instructed to revise the curriculum and move to a student-centred teaching style allowing university students to express their values and become more of critical thinkers (Kostoulas-Makrakis & Makrakis, 2012).

Based on the above-mentioned discussion, it is concluded that students' attitudes toward the four pillars of sustainable development is a key factor in any future efforts to sustain and preserve the current resources for future generations. Sustainable development has received a great deal of attention from people, organisations, universities, governments, and researchers on a worldwide basis. Sustainable development is geared toward sustaining the present for the benefit of future generations in the four major pillars, including economy, society, environment, and education. The university system is expected to rise to this challenge and play a crucial role in resolving the key sustainability issues through graduates that have the needed attitudes to act as responsible change agents and global citizens. There is evidence that students, in general, do not place enough weight and justification for involvement in sustainable development (Erskine & Johnson, 2012). Furthermore, there is a growing interest in research that measures attitudes toward sustainable development (Olsson, Gericke, & Chang Rundgren, 2015; Schneller, Johnson, & Bogner, 2015). To the researchers' best knowledge; there is paucity of research in Jordan that addresses the attitudes of university students toward sustainable development. Therefore, the primary aim of this study is to determine the attitudes of science education students at a public university in Jordan toward sustainable development.

Methodology

Participants

The target population for this study is 668 undergraduate students from the Faculty of Educational Sciences with a major in classroom teacher selected from one public university in Jordan. The accessible population is 350 students who completed or registered in one or more of the three science education courses (physical sciences, biological sciences, and conceptual chemistry) for the second semester of the academic year 2017–2018. A sample of 220 students was drawn from the accessible population. This sample is considered acceptable representation of the target and accessible population. A total of 198 usable instruments were returned with a response rate of 90%. The sample distribution was 4 males (2%) and 194 females (98%). Students in this study were informed that the data collection and presentation of results were confidential.

Instrument and Procedures

The instrument used in this study was a survey named "Attitudes toward Sustainable Development Scale" (ASDS) developed by Biasutti & Frate (2017). This survey aimed at measuring attitudes of 484 Italian university undergraduate students toward sustainable development. The ASDS composed of 20 items was distributed on four dimensions as

follows: environment (5 items), economy (5 items), society (5 items), and education (5 items). These items were rated on a Likert-type scale ranged as follows: 1 “Strongly Disagree”, 2 “Disagree”, 3 “Neutral”, 4 “Agree”, and 5 “Strongly Agree”.

The original English version of the ASDS was developed after an extensive review of related literature; relevant questionnaires that measured attitudes, beliefs, and interest toward sustainable development and the environment; UNESCO (2005) and UN (2012) documents; and by a panel of experts in the fields of sustainable development and education for sustainable development. The expert panel was asked to review items and to determine ease of understanding, formulation of items, and conceptual validity. The ASDS was shown to have content validity. The construct validity of the instrument was established through exploratory and confirmatory factor analyses.

The process of developing the ASDS survey represented by the content and construct validity procedures ensures that the survey can be used in different contexts and is suitable for use in Jordan. The issue of sustainable development is a global issue and is not limited to one specific country. The RUCAS project was implemented among university students in Jordan within the Faculty of Education. This implies that university students within the Faculty of Education are exposed to the principles of sustainable development. It is also worth mentioning that the ASDS items were developed based on world principles (e.g., UNESCO and UN documents) that could be used in the university setting. In spite of the cultural differences, which may underline the framework of the instrument, there is a common core within the Tempus project to require inclusion of an elective course in sustainable development, in addition to infusing the sustainability concepts within science courses. Moreover, the university under study offers an optional route for science students to complete 24-credit hour courses in sustainability where students are offered professional diploma in sustainable development, apart from receiving their Bachelor degree.

Reliability alpha coefficients were satisfied for the four dimensions of the instrument as follows: environment ($\alpha = .74$), economy ($\alpha = .74$), society ($\alpha = .66$), and education ($\alpha = .76$). Cronbach's alpha of below .70 was considered acceptable when scale items were below six (Biasutti & Frezza, 2009; Kyle, Graefe, & Manning, 2005; Ugulu, 2015).

The original survey was translated by an expert faculty member being bilingual in English and Arabic. This faculty member was instructed to retain both the language and the meaning of the items as close to the original as possible but to give priority to meaning equivalence. When the Arabic translation was completed, the survey items went through back translation from Arabic to English by another faculty member being bilingual in English and Arabic. The back-translated items were then evaluated by a third faculty member to ensure that the item meanings were equivalent in both the original English version and the back-translated version. If differences in meaning were found between items, those items were put through the translation process again. The Arabic version of the ASDS was then pilot tested with a group of 10 students and three faculty members to collect feedback about utility and validity of the instrument. The faculty members emphasised that the survey had both face and content validity.

Finally, the survey was then pilot tested with a group of 50 undergraduate students. Based on that, the alpha reliability for the four dimensions was as follows: environment ($\alpha = .72$), economy ($\alpha = .69$), society ($\alpha = .85$), and education ($\alpha = .82$). These results are acceptable (Robinson, Shaver, & Wrightsman, 1991) and indicate that the instrument is suitable to measure attitudes toward sustainable development among university students in Jordan.

Results

To address the aim of the research, means and standard deviations were computed for items of the four sustainable development dimensions. To determine attitudes of students' responses, the following classification was followed: above 3 (positive attitudes) and below 3 (negative attitudes).

The first sustainable development dimension was the environment. According to Table 1, the overall mean score for this dimension was 2.66, indicating negative attitudes of university students toward the environment for sustainable development. The second sustainable development dimension was economy. According to Table 1, the overall mean score for this dimension was 3.15, indicating positive attitudes of university students toward the economy for sustainable development. The third sustainable development dimension was society. The overall mean score for this dimension was 3.10, indicating positive attitudes of university students toward the society for sustainable development. The fourth sustainable development dimension was education. According to the results obtained, the overall mean score for this dimension was 3.17, indicating positive attitudes of university students toward education for sustainable development. This is an interesting result and an important indication of the value of education for sustainable development more than other dimensions mentioned in the table (environment, society, and economy).

Table 1
Means and Standard Deviations for the Dimensions of Sustainable Development

Dimensions	Mean	Std. Deviation
Environment	2.66	.79
Economy	3.15	.88
Society	3.10	1.10
Education	3.17	.99

Discussion

Education is a key factor in human development, which can maintain productive and secure world through addressing issues related to sustainable environment (Somayyeh Ghorbani, Jafari, & Sharifian, 2018). The educational system has a responsibility to deal with the challenges posed by the issue of sustainability (Eva Carbach & Fischer, 2017). Therefore, the primary aim of this study is to determine the attitudes of science education students at a public university in Jordan toward sustainable development. The pillars of sustainable development investigated in this study have been grouped into four dimensions, including the environment, economy, society, and education.

With regard to the environment dimension, the overall mean of the students' responding to this dimension reflected a negative response. In other words, students had negative attitudes toward the environment as a sustainable development practice. They perceived that people's interference with the environment might produce catastrophic consequences impacting people's quality of life. Moreover, students perceived that industrial growth, agricultural production, and building developments were more important than environmental protection. These results are disturbing and deserve further attention because in other parts of the world previous studies indicated that students had positive attitudes toward the environment as an important pillar of sustainable development

(Azapagic, Perdan, & Shallcross, 2005; Choi, Shim, So, & Yeau, 2010; Ju & Lee, 2011; Kagawa, 2007).

Furthermore, it seems that students were not knowledgeable and less aware of the environmental dimension of sustainability and the way it could affect present and future generation's quality of life. Students should be aware that any threat to the environment is a threat to development efforts in the country (World Bank, 2012).

One explanation for these results might be the fact that students were not exposed enough to the importance of the environment as a sustainable development practice in the curriculum (Lozano, Lozano, Mulder, Huisingsh, & Waas, 2013). Students can take one elective sustainability course within their study plan. The university under study also offers an optional route for science students to complete 24-credit hour courses in sustainability leading to earning a professional diploma in sustainable development, apart from receiving their Bachelor degree. Another explanation for such results is the fact that the three science courses include few concepts related to environmental sustainability where it is possible in the syllabus dependent on the faculty member. Therefore, the students in this study may have not taken the elective course on sustainability and may not have taken the optional diploma that is designed to classroom teachers.

Another explanation for the results of the study is that students are living in a country that is small in size with a large population, much dry land, and low water resources, which may have impacted their attitudes as to the importance of the environment dimension of sustainability compared to other dimensions.

On the contrary, the other three pillars of sustainable development received positive attitudes from university students under study. These results are not consistent with previous research indicating that university students in different parts of the world (e.g., UK and Australia) had positive attitudes toward one pillar of sustainable development (the environment) while neglecting the other three pillars of sustainable development (economy, society, and education) (Azapagic et al., 2005; Choi et al., 2010; Ju & Lee, 2011; Segalas, Ferrer-Balas, & Mulder, 2010).

With regard to the economic pillar of sustainable development, the overall mean of the students' responding to this dimension reflected a positive response. They perceived that government economic policies should spend more money to increase sustainable production and fair trade; reduce economic differences between people; and reduce poverty and hunger in the world on the expense of increasing the economic well-being of the industrialized countries. These results can be justified by the fact that the economic conditions in Jordan have influenced the perceptions of participants especially when it comes to reducing differences between people and reducing poverty and hunger. It is well known that there are countries in the world that continue to get richer on the expense of other countries where they continue to get poorer leading to poverty and hunger. However, students did not agree that government economic policies in Jordan should act as if a country were wasting its natural resources. This result is justified by the fact that Jordan has limited natural resources and government policies are geared toward sustaining those resources.

As far as the society pillar of sustainable development is concerned, the overall mean of the students' responding to this dimension reflected a positive response. They perceived that the society should promote equal opportunities for both genders, keep peace in the world, provide free health services, and keep contacts with other cultures. In fact, these results are consistent with the role that Jordan is playing in keeping peace

among different countries and cultures within its boundaries and in the world and in providing free health services for needy people. Moreover, the public university under study has taken proactive steps toward equal opportunities for males and females such as women empowerment in leadership positions. However, respondents did not agree that the society should take responsibility for the welfare of individuals and families. This attitude is regarded as noble because Jordan as a country does not have enough economic and natural resources to meet such demand.

With regard to the education pillar of sustainable development, the overall mean of the students' responding to this dimension reflected a positive response. They perceived that faculty members should use student-centred teaching methods; promote future-oriented and critical thinking; connect between local and global issues. These results are in line with previous research indicating that education should be used for sustainable development (Sharma & Kelly, 2012). It is worth mentioning that the university under study is regarded as a leader in providing students with the best teaching methods, strategies, training workshops, seminars, activities, and state of art technology to enhance their critical and future-oriented thinking from a local and global perspective. However, students did not believe that faculty members were promoting interdisciplinary between subjects. In fact, this is an issue that deserves further investigation because such an action can provide students with system view and better understanding of issues involved.

Conclusion and Suggestions for Future Research

In conclusion, three pillars of sustainable development (economy, society, and education) received positive attitudes from university students. However, the fourth pillar of environment as a sustainable development practice received negative attitudes from university students. Based on the above discussion, the following recommendations for theory and practice are provided:

1. More studies should be carried out at other universities in Jordan that include equal representation of male and female students.
2. Research into the antecedents of sustainable development seems appropriate. For example, we may look at variables such as economic status of participants and place of residence (urban vs. rural).
3. University leadership should establish an environmental education course as mandatory to all university students. For example, the course may include subjects related to the natural resources of the country, the link between environmental sustainability and people's quality of life, the roles of industrial growth, agricultural production, environmental protection in the development of people and nations, and the responsibility of the society toward individuals and families.
4. The university system should include sustainability as part of its business strategy. For example, faculty members should infuse courses with sustainability concepts and issues to better prepare students for their future professions to become better productive citizens (Creel & Paz, 2018). Thus, the sustainability course should be mandatory and not optional for teacher education classroom teachers.
5. The university system should develop sustainable reports to encourage students' engagement in sustainability issues, improve university management, and foster

public relations with various stakeholders (Eva Carbach & Fischer, 2017). There is a need to develop a research framework that assesses the benefits of sustainable development in higher education institutions, which can help university students now and in the future (Maragakis & Maragakis, 2016).

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Elaborating Indigenous Knowledge in the Science Curriculum for the Cultural Sustainability

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Abstract

Indigenous knowledge has been contrasted and compared with scientific knowledge as traditional versus modern. This becomes the main problem for the native learners who feel separated from their environment. They face the challenge of existing in a couple of worlds indigenous and non-indigenous. The research presents the theoretical viewpoints of science education and indigenous knowledge to provide a new perspective on science learning. Data are gathered through the original document analysis of indigenous communities of Javanese people and science syllabi. The results of the study propose four steps to integrate indigenous knowledge in the science curricula: fragmented, connected, sequenced, and integrated. This study indicates that indigenous knowledge incorporated in the science curricula includes attitude, knowledge, and skill aspects. It establishes a significant connection between what pupils encounter in the school and their lives beyond the school for the cultural sustainability. Elaborating indigenous knowledge in the science classroom is potential for building meaningful learning and connecting the gap of science education pathways that a student obtains in schools and community.

Keywords: indigenous knowledge, science curricula, cultural sustainability.

Introduction

Indigenous knowledge has been ignored and dismissed from science curricula for several years. It may be seen to be at odds and limits of scientific knowledge. Some people also consider indigenous knowledge should not be given since it will prevent the non-indigenous community (Aikenhead & Ogawa, 2007). The current science curriculum is a representation of Western worldviews that seldom forget social activity in the real-life environment and might be alien to some of the pupils (De Beer & Whitlock, 2009). This problem has an impact on the imbalances in societies where cultural values and local wisdom are abandoned. There is an also even alienation to the knowledge itself. This further influences the moral, social, cultural, and natural crisis that has

caused the humanitarian crisis (Herusatoto, 2012; McInnes, 2017). The current difference in global development to the unsustainable patterns of behaviour increases the question of whether the root of pedagogy is not drawn back to the philosophy as a unified body (Fedosejeva, Boče, Romanova, Iliško, & Ivanova, 2018).

In recent years, a requirement for a holistic understanding of sustainability aspect has regularly appeared, resulting as a need and condition for determining a current perspective education (Fedosejeva et al., 2018). The increase of awareness of the indigenous sustainability is filled by enthusiasm for nature conservation, social justice and the development of science in classes based on the cultural identity. Aikenhead and Ogawa (2007) stated the reasons that stimulated the native research: the scholars would like to develop the containing domain of science, a chance to improve the supremacy and cultural continuation of indigenous people. They would like to raise a number of educators who are aware of the cultural impact on learners' science achievement. Education is not only strongly tied to formal schooling but also is a comprehensive process. People must learn, observe, remember, and develop a social, moral, and emotional response to their circumstances (Herusatoto, 2012; McInnes, 2017). The fact that happens is pupils that represent different cultures, gender, education, age, community, interests (Guest, 2002); they bring various ideas in the classroom based on their expertise and based on diverse backgrounds that also frequently represent different science concepts. Their mind is full of experience and knowledge. The pupil's consciousness has evolved through the process of assimilation and accommodation known as preconceptions, which have not been realised (Mestre & Touger, 1989). Learning should emphasise how to begin a lesson based on students' previous knowledge and experience. Everything that the learner has experienced or thought can be a source of scientific knowledge. They should be encouraged to strengthen their cultural identities and be interpreted in a practice that is meaningful.

In the context of education, the most efficient way of strengthening indigenous knowledge is integrating the knowledge into school science (Aikenhead, 2006; Meyer & Crawford, 2011; Regmi & Fleming, 2012; Zinyeka, 2013; Zinyeka, Onwu, & Braun, 2016). It is a challenge for educators and researchers to promote lessons and curricula to stay in synergy with the demands of the times without having to abandon local values. Teachers need to recognise that the indigenous knowledge and classroom scientific knowledge can synchronise and be support for each other (Regmi & Fleming, 2012). The addition of indigenous knowledge in the curricula is an essential element of contemporary science education. Indigenising curriculum refers to the integrating of indigenous knowledge into the school science curriculum (Moyo & Kizito, 2014), incorporating an audible "native voice" (Acton, Salter, Lenoy, & Stevenson, 2017). The introduction of indigenous knowledge into science school might present science more appropriate for a student in the culturally different classroom (De Beer & Whitlock, 2009), could have a definite impact on students' enthusiasm in science (Kasanda et al., 2005), and help them appreciate as well as maintain alive the native knowledge (Ng'asike, 2011). Indigenous knowledge brings affordances for conceptual improvement of pupils in the science school since this cultural knowledge frequently supports the formal curriculum idea adequately (Cronje, de Beer, & Ankiewicz, 2015).

Theoretical Framework

School Science

Science is a way of knowing about the phenomena that occur in nature by using methods and ways of systematic thinking (Howe, 2002). It is an objective perceiving reality. Science refers to conceptual constructs established by rational empiricism behind the realm of observation and experiment (Snively & Corsiglia, 2000). Chiappetta and Koballa (2009) are convinced that science is a systematic effort to create, construct, and organise knowledge of natural phenomena that begin from the human nature of curiosity, which is then followed up by an inquiry to investigate the most straightforward and consistent explanations and predictions of the phenomena. Science is regarded with testable phenomena and studies the universe as knowable (Ogunniyi, 2011). Science is essential and it includes: (1) a process: an inquiry procedure that includes real phenomena; (2) products: facts, concepts, principles, laws, and theories that interpret and predict the phenomena; (3) attitude: curiosity about nature that is studied within persistent, honest, and openness to new opportunities (Lawson, 1995).

Science does not only consist of facts, laws, and theories, but also involves human activities, such as investigations, processes, attitudes, and beliefs. Science in the domain of knowledge must be factual, conceptual, procedural, and metacognitive (Krathwohl, 2002; Suwanto, 2010). Factual knowledge is an essential component that pupils must recognise by the discipline. The core elements are given following academic science, which is easy to understand and systematically arranged. Conceptual knowledge connects, associates, and combines different essential elements in a systematic and shared common structure. This knowledge can be a scheme, mental model, or explicit and implicit theories in different cognitive psychology. Procedural knowledge emphasises how to make discovery and sets criteria for the use of skills, algorithms, techniques, and methods collectively. Metacognition implies awareness, and responsibility for one's own learning and thinking. Sandoval and Reiser (2004) explain that the epistemology of science comprises not only sources of scientific knowledge and the value utilised to sustain that knowledge, but also the way of knowing handled by the community to accept scientific knowledge.

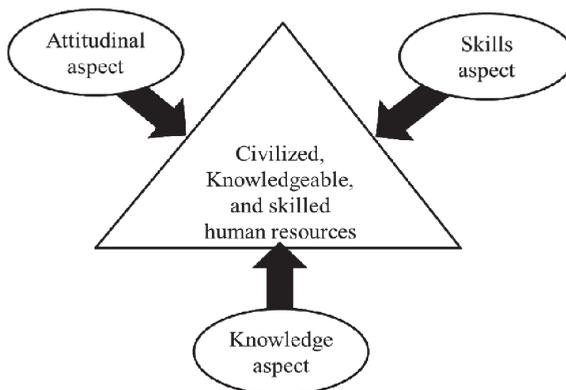


Figure 1. Scientific competencies for school science.

The orientation of science curriculum in Indonesia will be interpreted in educational practices with the specific purpose of enabling learners to have fundamental skills for

the careers of today and in the future. In the science curriculum, the scientific competencies that must be completed by primary students involve (1) fostering religious attitudes and high social ethics in the life of society, the nation, and the state; (2) mastering of knowledge; (3) obtaining the skills or ability to apply knowledge to conduct scientific inquiry, problem-solving, and creative work related to daily life.

Indigenous Knowledge

Indigenous knowledge is a comprehensive knowledge that incorporates technologies and practices that have been used by native people for their continuation, survival, and adaptation in a change of environment (Kasanda et al., 2005; Onwu & Mosimege, 2004). Battiste (2002, p. 2) emphasised the holistic nature of indigenous knowledge and proposed that native knowledge should contain the complex set of technologies improved and sustained by the indigenous community. Ogawa (1995) defines indigenous knowledge as “cultural-dependent collective intellectual perceiving of reality” where collective means to be held in an adequately similar form by people to provide effective communication, but independent of a particular mind. All people involved in indigenous knowledge from moderate to high levels in a community are experts. They are actors of their knowledge. Indigenous knowledge is manifested in practices and communicated orally, and at times through copying, illustration, painting, and other artifacts (Zinyeka et al., 2016). The pattern of indigenous knowledge is like the collective thinking of a place or region based on natural phenomena that incorporate human and non-human thought integration, such as the scientific knowledge rooted in the local culture (Alessa et al., 2016). Indigenous knowledge relates to “the people” cognitive and wise legacy as a consequence of their interaction with nature in common region (Hart, 2010). The ethnographical background of indigenous knowledge reveals compromised efforts, strengths, and preservation in a day to day continuation and generation of experimental living with nature (Chandra, 2014). It provides the foundational teaching and lessons on how people are linked to the rest of the life.

Indigenous science describes how the local environment runs through a scientific process that includes objective observation of natural phenomena and classifies as well as solves problems that are encompassed in all perspectives of native culture (Snively & Corsiglia, 2000). Characteristics of indigenous science combine local development and application, such as testing hypotheses, experiments, and problem-solving related to the sociocultural dynamics. The body of knowledge, equivalent to the peer-reviewed study, consists of a continuous living awareness of the nature such as agriculture, architecture, mathematics, climatology or climate change, astrology, medicine, plant varieties, etc. (Alessa et al., 2016; Kasanda et al., 2005; Onwu & Mosimege, 2004). Indigenous knowledge is both factual and the existing practice of indigenous people needed for survival and adaptation in diverse conditions through natural and socio-cultural synergies with the environment (Regmi & Fleming, 2012). Although the factual knowledge and practical knowledge are different, they both influence one another.

Cultural Sustainability

Culture is central to awareness of sustainability in the native community, underlying and pervading the whole aspect of life (Throsby & Petetskaya, 2016). Culture is often reduced to unified or essentialised abstraction that seeks to explain the term through finite approaches that create neither diverse nor complex notions of “culture” (Acton et al., 2017). UNESCO (2009) defines culture as the whole complex of distinctive spiritual, material, intellectual and emotional features that characterise a society or social group, not limited to the arts and letters, and including modes of life, the fundamental rights of the human being, value systems, traditions, and beliefs. Sustainability principles are central to the culture of the world’s native people and cannot be neglected in any consideration of charming development paths that their populations have sustained for countless ages (Throsby & Petetskaya, 2016; Van den Branden, 2012).

Cultural sustainability refers to the ability to preserve cultural identity and to enable change to be conducted in ways that are harmonious with the cultural values (Finlayson, 2015). This emphasises the sense of progressive understandings of culture and recognises that society is necessary. Acton et al. (2017) describe cultural sustainability as enabling inter-and intra-generational access to cultural resources. The theoretical background for cultural sustainability begins from the close parallels between natural and cultural capital. Natural capital covers natural resources, ecosystem, and biodiversity, while cultural capital holds cultural property (tangible and intangible), cultural networks and support system, and cultural diversity (Throsby & Petetskaya, 2016). Material parts cover monuments of architectural, sculptural, painted, archeological and human-made landscape, while immaterial parts include practices, designs, illustrations, attitude, knowledge, and skills (Axelsson et al., 2013; UNESCO, 2003, 2009). Cultural sustainability arranges with a comprehensive definition of sustainable development to suffice immediate demands without compromising the needs of the future generation (United Nations, 1987), including encouraging commitment to and conservation of cultural heritage. In other words, sustainable development does not pose risk to the natural systems that sustain the life of the indigenous community. It is necessary to explore the linkage between sustainable development and indigenous knowledge. Sustainable development is frequently recognised with the environmental issues (Burns, 2015). In this study, we only emphasise immaterial cultural heritage, attitude, skills, knowledge as well as fundamental science competencies.

Method

The research question is as follows: How to elaborate indigenous knowledge and school science in the science curriculum for the cultural sustainability? The present study focuses on the possibilities to elaborate indigenous knowledge into the science curriculum. Data were collected through Javanese original knowledge documents from the Reksa Pustaka Pura Mangkunegaran, Radya Pustaka Museum, and Indonesia science syllabus in primary school. These sources provide valuable data to help researchers understand central phenomena in a qualitative study, particularly for document analysis (Creswell, 2012). The authors are engaged in work with the Javanese community as part of the indigenous methodology. The indigenous methodology is a body of indigenous and theoretical approaches and methods, rules, and postulates employed by indigenous research (Porsanger, 2004). The aim of this methodology is to assure that research on

native issues can be carried out further considering the ethical way from the viewpoint of Javanese native people.

The qualitative data were organised into a file folder since of a significant amount of information gathered during the study. The data were analysed in detail to answer the qualitative research question. During data analysis, the researchers identified the signed documents that provided useful information about indigenous knowledge in the Javanese native communities that is of particular relevance to the research being studied. The significant information was then organised and interpreted by creating a comparison table. The researchers also explored the data and developed codes to obtain a general sense of data and consider whether they needed more data. The analysis technique at this stage was implemented using visual content analysis, which was a process of identifiers and calculating events, characteristics, and other phenomena in visual data (Johnson & Christensen, 2013; Creswell, 2012).

Findings

Science education research provides evidence for the cultures of science, school, and students may or may not gather in the space of school science learning in the diverse field. Curriculum integration is required to enrich learning and to connect information learned. Educators should reflect elaboration as a potential tool that can link various knowledge disciplines. In this study, we proposed four steps to integrate indigenous knowledge in the science curricula. These steps were adapted from Fogarty (1991): fragmented, connected, sequenced, and integrated (Figure 2).

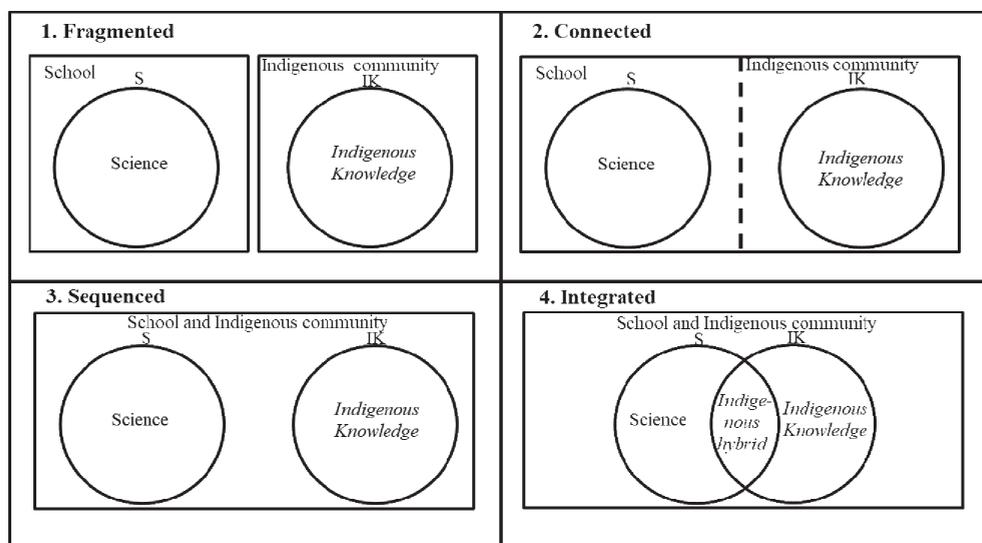


Figure 2. Elaborating process indigenous knowledge into science curricula

1. Fragmented

Indigenous knowledge and classroom science were studied independently in the isolated system. It was arranged to dictate distinct disciplines. Each knowledge area is considered to be independent as a real entity in and of itself. Indigenous knowledge was

a complicate and comprehensive subject when compared to school science. The aim of this fragmented step was that the sincerity of each knowledge area was left untainted.

2. Connected

The results of the analysis of each knowledge area in the fragmented step were explicitly connected based on each subject area, topic, concept, skill, and other schemes. The arrangement between the pair of knowledge started to penetrate (dashed line). The breadth of indigenous knowledge required accurate identification and analysis. This process resembled the osmosis process, where the concentration of indigenous knowledge was greater than the norm science school. The key to this step was the attempt to correlate indigenous knowledge within a discipline deliberately. By connecting within a discipline, it will perceive the big picture as well as a focused study allowing one to review, reconceptualize, and assimilate ideas.

3. Sequenced

The next step aligned the two areas of knowledge. This alignment aimed at examining the relationship between the two knowledge areas more deeply and in detail, where the universe of indigenous knowledge and science classroom were linked and correlated to one another. The key of this stage was to arrange the topics, concepts, chapters, and skills that were similar between the two knowledge areas. The universe was fused within the school and the native community. This part emphasized a critical decision about the subjects and content areas.

4. Integrated

The integrated step blended the primary aspect of setting curricular preferences in each knowledge area and finding the overlapping skill, knowledge, and attitude. The integration resulted in shifting ideas out of subject matter content as commonalities emerged. The integrated model led to the interconnectedness and interrelationships between both knowledge areas. Additionally, it built understanding across disciplines and fostered appreciation of expertise. Both pieces of knowledge were integrated regarding the rightness of graduates' competencies and competencies that must be achieved by students (Table 1).

Table 1

Differences and Similarities between Science Classes and Javanese Indigenous Knowledge

Scientific competencies	Differences		Similarities
	Science classes	Javanese indigenous knowledge	
Attitude and social ethics	<ul style="list-style-type: none"> • Nature was explored, utilised, and explained scientifically • Emphasised the strength of the empirical evidence • Opened mindedness • Dismantling the mystery • Objective and formal 	<ul style="list-style-type: none"> • Nature was part of life • Emphasised on partial empirical strength and partly metaphysical • Narrow and closed mindedness • The mystery was harmonization • Subjective and informal 	<ul style="list-style-type: none"> Honest, Creative, Tolerant, Caring, Persevere, Cooperation, Responsible, Curiosity, Respect, Conscientious

Sequel to Table 1 see on the next page.

Sequel to Table 1.

Skills/ procedure	<ul style="list-style-type: none"> • Observation was arranged by measurement using instruments • Data and evidence were collected quantitatively, qualitatively, and using a mix of methods • Results were communicated orally and in writing • Predictions were made based on data and empirical evidence • Generally recognised • Linear thinking 	<ul style="list-style-type: none"> • Observation was arranged by reading the signs of nature and experience • Data and evidence were obtained qualitatively • Results were communicated orally • Predictions were made based on natural signs and beliefs • Locally recognised • Circular thinking 	Observing, Collecting data, Communicating, Decision making, Critical thinking, Predicting, Verifying, Analysing, Evaluating, Comparing, Grouping, Setting the pattern
Mastering of knowledge	<ul style="list-style-type: none"> • Separate by discipline • Studied for the needs of economy and politics 	<ul style="list-style-type: none"> • United and integrated with other knowledge areas and applied in everyday life as a way of life and beliefs • Studied for cultural and natural preservation 	Technology, Art, Culture, Natural sciences, Mathematics, Agriculture, Medicine

Initial similarities between both pieces of knowledge are fundamentally normative. They both propose values and behaviour norm consideration, in some sense an idealized appearance of the world. In the science development issue, it is necessary to discuss the issue of implementing the knowledge structure and classification method that is relevant to the contexts concerning educational sustainability. Classification is applied to recognise the potential for integration among various knowledge areas by looking at the issue (Salite et al., 2016). This integration is one of the ideas to make indigenous knowledge more accessible, by presenting a curriculum in a way that recognises and utilises a particular peoples’ way of conceptualising natural phenomena in the students’ circumstances. Integration of both pieces of knowledge is the requirement of a safe space for students to explore the culture interface that is complex.

Furthermore, researchers analysed the different perspectives on learning and teaching between school science and indigenous knowledge (Table 2).

Table 2
Differences in Learning Instruction Aspects between Science Classroom and Javanese Native Science

Learning spect	Science classes	Javanese indigenous knowledge
Learning Method	<ul style="list-style-type: none"> • Learning was performed at the school in a relatively fast way • Examples were provided through the concept • Learning and instruction were given by the didactic methods 	<ul style="list-style-type: none"> • Learning was carried out in the community and nature for a long time even for life • Examples were provided through behaviour

Sequel to Table 2 see on the next page.

Sequel to Table 1.

	<ul style="list-style-type: none"> • The learning process was carried out referring to Bloom's taxonomy ranging from memorizing to creating • Knowledge was transmitted orally, in writing, and mathematics 	<ul style="list-style-type: none"> • Learning was carried out using 3M methods, <i>Momot</i> (loading), <i>Momong</i> (caring and loving) and <i>Momor</i> (fused) • The learning process was carried out by the 3N system, <i>Nyinau</i> (learning), <i>Nggagas</i> (understanding), <i>Nyipta</i> (creating) • Knowledge was conveyed orally
Learning Media	<ul style="list-style-type: none"> • Learning resources were books, computers, experiments • Use of visual media, audio, audio-visual, project motion, and aids 	<ul style="list-style-type: none"> • Learning resources were nature, society, and experience • Use of visual media (symbols, <i>wayang</i>, reliefs, sculptures)
Assessment	<ul style="list-style-type: none"> • Assessments were carried out to achieve learning objectives • Achievement was evaluated through tests and exams 	<ul style="list-style-type: none"> • Assessment was hard since the goal was to improve life • It was challenging to evaluate achievement in the form of life experiences

Discussion

Native people serve the demands of the behavioural and attitudinal act. Javanese traditional notions provide complete moral and ethical learning about nature and human behaviour. It covers various things that serve as a source to explore the philosophy and belief (Endraswara, 2006). The dominant characteristic behaviours tend to be quiet and mutually respectful. The knowledge teaches the Javanese people to appreciate nature with a good sense and mind to fulfill the necessities of life. Native knowledge is deeply rooted in connection with the environment as well as in cohesion (Magni, 2017). Integrating indigenous knowledge into science curricula gives the learners the opportunity to think about the support of life and preserve from over-exploitation of nature. Studying indigenous knowledge allows the student to maintain a sustainable use and control of natural resources to protect the ecosystem and improve its resilience. The knowledge guides students to be engaged and critical of socio-cultural problems. Indigenous knowledge can support proper resource management and make students responsible, communicative and express a caring manner about the human rights of native people, classical culture, and human intellectual capital. The student's ability to observe and adapt has helped indigenous people to face a different and complex circumstance that influences their way of existence and regions. Indigenous knowledge extends strategies and thinking that consider what, how, and when the approach is adequately applied (Aikenhead & Ogawa, 2007).

Indigenous knowledge contains experience that continues from generation to generation. It can be history, myth, legend, culture, art, music, speech, language, writing, scientific discoveries, social networking, and life skills (Ahimsa, 2012; Jacob et al., 2015). Cajete (2000) reported that indigenous knowledge blended within the spiritual and metaphysical indigenous knowledge expressed in the figures, places, and actions, using symbols, art, stories, song, metaphors, proverbs, unique objects, and structures to share the culture. The knowledge is highly contextual and directly related to the life of

native people such as the knowledge of horoscopes in astrology (Pawukon), and a season calendar that is still used by farmers and fishers (Pranatamangsa). The knowledge is concerned with the science and compliant technology. Integrating indigenous knowledge into science curricula makes it possible to apply common strategies of thinking and problem-solving.

Indigenous people play a vital role in safeguarding and preserving processes in nature, and their behaviour declared in a ritual or belief. In this case, it cannot be seen that education only occurred in the field of formal schooling, which is restricted to the classroom but incorporates the whole of nature and all its phenomena. Considering localized and nuanced understanding of indigenusness and indigenous knowledge is the key factor in ensuring cultural sustainability. The cultural sustainability can be achieved by assuring that indigenous people share their experiences in their subject. Respect for an acknowledgment of a highly situated consciousness relates to the necessity of embedding plural ways of knowing (Acton et al., 2017). Every culture influences the ecosystem and local knowledge. It is the responsibility of the communities around the areas (Retnowati et al., 2014). Cultural adaptation is expected to overcome the interface between indigenous knowledge and scientific knowledge aligned and in harmony with recent developments; it is not enough to inherit, preserve and save it, but rather it is necessary to restructure the culture. Natural harmonization is a characteristic of the traditional culture. Nature is a home where humans become part and continuously interact with it.

A culturally studied science curriculum purposes to develop social and cultural knowledge as part of the educational process (Stephens, 2000). It has to work with conferring science in the body of knowledge by strengthening that science rules can be integrated in the learning process (Retnowati et al., 2014; Stephens, 2000). Native knowledge carries components of the science disciplines available to a pre-modern culture, as well as explanatory narratives on natural systems, which flagrantly contradict the fundamental of science. (McKinley & Stewart, 2012). It has to be obtained by finding the body of knowledge, correlating with the science classroom concepts and skills, and regulating instruction methods to carry out this integration. The integration of native knowledge in the science curricula might fill the gap of science education paths that students receive in schools with society and diminish the foreignness feeling. When the science classes harmonize with the student's life-world knowledge, science education will tend to raise the students' view of the world, and the enculturation process tends to transpire.

Efforts to expand the context of science education have been conducted by including relevant contexts in school science curricula. Blending indigenous knowledge within science curricula is required to prevent the alienation of learners. They can obtain indigenous knowledge, by collecting precise knowledge from their parents, grandparents, elder siblings, indigenous elders or someone who is responsible for transmitting skills and values. The purpose is to track down indigenous knowledge as groundwork for further school research and advance understanding of local to regional natural and environmental condition. During learning indigenous knowledge, students are supposed to recognise that science is always developing, but fundamental knowledge cannot be left. The cognition is influenced by the social circumstances, which include both cultural and intellectual norms by power relationships among those who create and those who make use of the knowledge (Sterenberg, 2013). The elaborating of indigenous knowledge

in the science curricula has strong implications for learners in terms of at least three ideas. First, students might conceivably improve all of the universal primary abilities and intelligence while receiving an indigenous knowledge field. Second, acquisition of the native area is a meaningful accomplishment. Finally, various research topics through several learning methods can change perspective and establish a deep understanding, such as storytelling, modelling, viewing, experiential learning, project-based learning, and collaborative learning.

Indigenous and European scientific knowledge frames should not be pitted opposite as traditional versus modern. Both pieces of knowledge must remain in harmony. The harmony cannot occur unless the both are respected as independent coexisting paths of knowledge. Preferably these two knowledge structures are relating and contributing to each other's improvement and development (Stephens, 2000). Indigenous knowledge sustainability is essential for students' future. It generates a strong relationship between what students experience in class and their lives out of school. School is the place where students can bring their cultural experiences that become their practices and ways of knowing (Meyer & Crawford, 2011). The pupil should be exercised proper skills and knowledge to undertake duties as part of civilians. They can assess information based on their knowledge (Chandra, 2014). Pupils can take more complex scientific ideas, skills, and advance their social understanding as well as applying the actual life. In other word, students acquire a valuable and meaningful learning.

The current sustainable development programme contains many issues that are straight concerned with indigenous communities (Magni, 2017). Indigenous science is closely related to cultural and global sustainability. In this sense, cultural sustainability aligns with a broader meaning of sustainable development to fit present needs without undermining the needs of the future generation. Its insights are invaluable in applying spiritual relationships with nature. The alliance of both fields of knowledge is space for local knowledge to gain better access into school science (Baquete et al., 2016; Glasson, Mhango, Phiri, & Lanier, 2010), a way of supporting young people to recognise their social and cultural value (Hewson & Ogunniyi, 2011) and highlight the advance of "understanding of local to regional biological and ecological circumstance and change into more powerful decision-making on the role of indigenous people" (Krupnik & Ray, 2007).

Some challenges that could hinder the elaboration of indigenous knowledge in the science curricula are that educators have been schooled in Western science and are more familiar with that general worldview than that of indigenous knowledge. The second one is the top-down system that is completed out of the curriculum policy and implementation. The third challenge is that the teacher needs adequate skills and competency, such as taking extra time, learning strategy. In addition, elaboration of indigenous knowledge into science curricula requires a collaborative learning process among stakeholders who are engaged in studying and addressing the sustainability phenomena (scientists, educators, indigenous practices, indigenous elders).

Limitations

The awareness weaknesses of indigenous knowledge involve the literature and information since the knowledge is derived from elders. Besides, some indigenous science holds traditional beliefs, which are considered inadmissible.

Conclusion

The paper argues that integrating indigenous science in the science classroom is possible in order to support meaningful learning and cultural sustainability. Learning of the concept of sustainability is essential to learners' future. Integrating indigenous knowledge is required to link the space and gaps that occur in the mind of students. Indigenous science helps the student think on the advocates of life and protect nature and culture from over-exploitation. The present study can serve as a reference for other researchers and educators to advance research on the indigenous paradigm for cultural sustainability and sustainable development.

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The Influence of Generation and Experiencing Daily Routines on Educators' Training

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Abstract

This qualitative study follows the two questions, how the factor of the generation, an educator in training belongs to, influences his or her general concept of how sustainability-related lessons should be conducted and how the factor of living in groups influences this as well. For this interviews with 206 students were held and their own educational approaches monitored. In conclusion, this study has three major findings. The first is the attempt to define the difference between the concept of environmental education and environmental instruction, as being different approaches to the same subject, with the latter being less participative and effective, according to this study. The second is, that there is apparently a generational gap between the Generations X, Y, and Z, concerning their approach on this subject. Apparently Education for Sustainable Development is becoming more and more implemented, with each generation. Finally, in-house living in everyday situations can make change towards sustainability happen with students and learners, but the other way is possible to. Considering this, learning in a group in an everyday situation might be a new approach for teacher training in Education for Sustainable Development.

Keywords: teacher training, Generation Y, Generation X, Generation Z, environmental instruction, environmental education, education for sustainable development.

Introduction

The issue of teacher training, considering Education for Sustainable Development, is a subject of life-long learning, needing an increased awareness by those, planning concepts and structures (Ghorbani, Jafari, & Sharifian, 2018). In recent years, we experience a rise of authoritarian nationalism, right wing parties and in-humanitarian exclamations by government officials, particularly in Western countries, few people would have believed a decade ago, showing a set of mind, prevalent in these societies, that contradicts sustainability (UNESCO, eds. 2015). Education for Sustainable Development can be considered an essential approach in hindering this undesired development (UNESCO, eds. 2015).

Apart from regular school teachers, we have professional, vocationally trained educators, able to establish the concept of Education for Sustainable Development in their educational approach and planning of lessons, especially with out-of-school-learning

(Hepper, 2016). Curricula for green vocational education courses in Germany considered this demand and shifted their course layout, owing this to the UN Decade of Education for Sustainable Development, while other countries still consider to establish similar structures (Anyolo, Kärkkäinen, & Keinone, 2018). These professions include forest workers, professional hunters, animal keepers, and others. For farmers or horticulturists some schools offer optional classes, but this is only rarely the case.

With these professions, sustainability education and environmental education has an average of 16 weeks of training during their three-year apprenticeship (Kunze, 2010). This can be considered to be an indicator, that teaching sustainability is an essential part of the future work of these vocations. This is particularly true for animal science professions (Kunze, 2010). Nowadays half of the former students work full-time as educators or as education and extension officers (Hepper, 2017).

This paper follows two research questions: First, it delves into the subject, how the generation affects the choice of methods for planning education in the whole field of sustainability. Second, it follows the question what role social learning plays in students who are living together in everyday situations, to identify aspects for a holistic approach on the issue of teacher training.

Methodology of the Study

This study monitors the educational process of 56 groups of students, who were participating in classes on environmental education and Education for Sustainable Development from 2010 until 2018. All groups learned about the principles, concepts, limits and strengths of Education for Sustainable Development, environmental education and environmental instruction, according to the standards of German forest education scheme (Hepper, 2016). The introduction phase included a reflective learning opportunity, where new skills, knowledges and competences were taught according to the concepts of the three approaches mentioned above. During earlier part of the study, the various concepts were evaluated externally, by teachers in training as a part of their written thesis for the higher teacher exam (Wolkenhauer, 2012; Weihberg, 2013).

Lessons held, following the concepts of environmental instruction had the lowest learning outcome, with Education for Sustainable Development offering the best results in the tests (Wolkenhauer, 2012; Weihberg, 2013; Hepper, 2015). Both teachers in training had initially preferred more instructional approaches, so the research led to a change of their own conviction.

Participants of the Study

Getting back to the students participating in the courses: After being told about the outcome of the tests and as a part of their final examination in this subject, the students had to plan a day with out-of-school-learning for pupils, from class 3 to 12 (9–18 years old) on a topic related to the environment and the sustainable use of natural resources. All of the participants were allowed to choose for themselves, what kind of topic and how they planned to address during their day (2–6 hours) and had to hand in a detailed excerpt, including the intended learning outcomes. The students worked together in a group of three to six people, typically in their flat-sharing communities. The planning for this occurred in their free-time after school.

The author, as the teacher responsible for this project, documented the whole process, following a qualitative approach for the research (Langner, 2000; Mayring, 2000; Jenker, 2007). For this, the content and structure of the lesson, as given in the planning and the actual teaching were analyzed, following the structures of qualitative content analysis (Langner, 2000; Mayring, 2000; Jenker, 2007). The number of participants with n=208 cases is small, so the qualitative approach is appropriate (Helferich, 2005).

Furthermore, qualitative interviews were held, following a narrative-focused approach, meaning that the student interviewed tells the interviewer his opinion on the subject of the lesson and the reasons for their choice of methods and concepts (Marotzki, 2003; Lenz, 2006; Ludwig-Mayrhofer, 2006).

The research was done on the level of an educational course experiment (Severing, 2001), due to the fact, that the approval for this was given by the schools principal, rather than the governmental school administration. All of the steps mentioned above, can be considered to be an integral part of research in such a setting (Voigt, 2013). The methods and approaches as well as the interview technique were tested in a pre-study (Marotzki, 2003; Lenz, 2006; Ludwig-Mayrhofer, 2006).

Research Findings

This paper relies heavily on defined subtypes of environmental education, as there are generational differences perceivable. The main problem of this study, is the differentiation of what is commonly called education in English. Easiest to explain, is the term "Education for Sustainable Development", due to the simple fact, that there is an internationally recognized definition from the UNESCO stating:

This means moving beyond literacy and numeracy, to focus on learning environments and on new approaches to learning for greater justice, social equity and global solidarity. Education must be about learning to live on a planet under pressure. It must be about cultural literacy, on the basis of respect and equal dignity, helping to weave together the social, economic and environmental dimensions of sustainable development. (UNESCO, eds. (2015) Rethinking Education. Towards a global common good? UNESCO Publication, France, page 3)

The consideration of economic, ecologic, social, and recently cultural aspects on any learning subject are therefore not separable from each other, regarding educational processes in Education for Sustainable Development (Iliško et al., 2018). One of the basic competencies of ESD is, that vocational students should be able to address unsustainability (Iliško et al., 2018), especially in regard of learning processes (Wolkenhauer, 2012; Weihberg, 2013).

It gets a little bit more difficult, when it comes to the German understanding of environmental education (EE). This concept is closely related to the aforementioned Education for Sustainable Development (ESD), originating in the 1970s and encompasses learning how to deal with nature, the environment and natural resources in a responsible manner (Rost, 2002). What is the major difference, is the thinking on a global scale, which environmental education lacks (Rost, 2002). Furthermore, there is a perceivable tendency in focusing on a single aspect of the environment, for example forests and woods, and is less competence- but rather knowledge-oriented (Rost, 2002), compared

with Education for Sustainable Development. Thus it often focuses on a single aspect of the environment, ignoring others to the degree, that it is more public relations work, rather than education (Hepper, 2016).

Finally, we have, what Germans call environmental *Erziehung*. To put it simple, the approach in *Erziehung* is, to influence students and learners to change their behavior in a way, that will lead to a better world and lesser damage (Rost, 2002). The students are being told to behave in a certain manner, that furthers the desired learning outcome. The main problem with this concept is, that the changes in behavior do not occur; it is more common for the concepts learned to compete with the other desires and intentions of the individual, what shows the major problem of this educational approach (Rost, 2002). In translations, this concept is often mixed up with the German word for environmental education. As these two terms describe something completely different, the author suggests that this concept should be called “environmental instruction” (EI), as it is more closely related to a manual how to do things, in this case, caring for and protecting the environment. Environmental instruction is based on a threat (Tempel, 2001), that has to be fought. Problematic issue is that this threat is only perceived by some, who want to make others behave in a certain way, without offering them the opportunity, to develop the knowledge, why this is necessary for themselves (Tempel, 2001).

These three concepts and structures compete with each other in the daily routine of educators and can be considered to be an integral part of modern day educational processes in Germany, concerning environmental und sustainability issues. Furthermore, resiliences, as an integral part of affecting bitterness before it occurs, can be more likely developed in holistic approaches following the concepts of Education for Sustainable Development (Wilderer, 2013), while it is absent in environmental instruction, due to the fact, that it is not a competence, learned by being told how to behave and act, but rather through experience and empathy (Sit, 2008).

Furthermore, these three concepts emerged in a chronological order, with environmental instruction preceding environmental education, followed by Education for Sustainable Development. This means that different generations of educators experienced different concepts of education for sustainability, thus forming their own concepts of how lessons should be held (Mangels, 2003), heavily influencing their own lessons. Furthermore, it can be assumed, that the more holistic approach of ESD, that was formed over the last decades is more likely part of the modern concepts compared with those of older generations (Fedosejeva et al., 2018), thus hindering the development of sustainability competencies (Fedosejeva et al., 2018; Iliško et al., 2018).

Even though the generational definitions are disputable, according to some authors, they do serve the explanation of phenomena, as well as traits and behavior assorted with a certain group of birth years (Anderson, 2004; Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Horx, 2015; Seemiller & Grace, 2016; Bowen, 2017; Patel, 2017).

The students participating in this study ranged from the birth year 1960 to 2002, the majority being from the 1980s and 1990s. This means that the students belong in their majority to the Generation Y (birth years 1980–1995), with a smaller number of the Generation X (1979 and before) and the second largest number from the Generation Z (1996–2010) (Anderson, 2004; Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Horx, 2015; Seemiller & Grace, 2016; Bowen, 2017; Patel, 2017).

Members of Generation X are often characterized as being superficial and more egoistic, or pessimistic, compared to baby boomers and the Generation Y. A growing number of latchkey children, the rise of punk and grunge music are characteristic of this time (Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Bowen, 2017). A certain apathy is part of their reputation, especially regarding political issues (Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Bowen, 2017). As learners these prefer experts teaching them and given structures to lean on (Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Bowen, 2017). What is a problem, is a certain kind of fear and unfamiliarity with certain ways of using modern communication devices (Kaufmann, 2015). This Generation grew up with the perception that education is a way of rising in social and economic status, but not that teaching is a desirable profession, due to a perceived low socio-economic status (Smith, 2014).

Generation Y, on the other hand, was heavily influenced by the 9/11-terrorist-attacks on the World Trade Center and other real or perceived threats (Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Bowen, 2017). As learners, they prefer creative learning settings, trial and error, more mentoring rather than being told, what to do. The intensive use of technology, a need for fast feedback and that diligence will ultimately lead to success are an integral part of their set of mind (Eisner, 2005; Dyson & Zink, 2007; Hobar, 2008; Bowen, 2017). This generation expects that their ideas for improving procedures are accepted and implemented. They need success and want it according to their own opinion (Eisner, 2005; Dyson & Zink, 2007; Eckleberry-Hunt & Tucciarone, 2011; Bowen, 2017). For this generation, it is essential to use new media, to not expect the ability to multi-task, and allow them to discuss and participate (Eisner, 2005; Dyson & Zink, 2007; Hobar, 2008). Being less oriented for a socio-economic status and more inclined in a well-proportioned work-life-balance, these students are more interested in educational professions (Smith, 2014).

The youngest group, Generation Z, needs a wake-up call to participate and a direction, where to go (Anderson, 2004). Information necessary to solve a problem needs to be given online and easy to find (Seemiller & Grace, 2016; Fedosejeva et al., 2018), like using applications instead of books for identifying plants. Furthermore, communication happens mostly with messenger services (Kaufmann, 2015; Fedosejeva, et al., 2018).

Education is very important for this generation, as is (corporate) social responsibility (dpa, eds. 2015; Patel, 2017; Fedosejeva et al., 2018). It is not so important to make big money, but rather work at an interesting workplace (Horx, 2015) and having a family at a very early age, compared with the other two generations (Kaufmann, 2015). Generally speaking, they are more optimistic (Seemiller & Grace, 2016), compared with their predecessors, even though health and environment are of great concern for them (dpa, eds. 2015).

Considering resiliences and it being most likely taught, when a lesson is planned according to the concepts of Education for Sustainable Development, there should be an increase in the prevalence of these concepts over the aforementioned generations.

In regards to this study, the classes and groups living together were characterized as belonging mainly to one of these generations, while the individual with his or her views was taken into account as well.

Research Findings

The majority of the students originated in the Generation Y, as expected considering the normal age of students to participate in vocational education courses during the research (2009–2018). The rather low number of Generation X students is going to decline even more in the coming years, with a growing number of Generation Z students and those coming after them.

Table 1

Structures of the Students Regarding Their Age and Generation, according to the Definitions Given above and Number of Cases, when the Concept of Environmental Instruction (EI), Environmental Education (EE) or Education for Sustainable Development (ESD) were Used by the Groups

Group year	No. of students	Students belonging to			No. of groups	Lesson was		
		Gen. X	Gen. Y	Gen. Z		EI	EE	ESD
Prestudy1	14	14			3	3		
Prestudy2	8	6	2		2	2		
2011	20	2	16	2	6	5	1	
2012	21	1	18	2	6	5		1
2013	20		20		5	3	2	
2014	27	2	24	1	8	3	5	
2015	29	1	25	3	7		6	1
2016	16	1	4	11	5	1		4
2017	26		6	20	8	1	1	6
2018	17	1	4	12	4		2	2
2018	10			10	2			2
Sum	208	28	119	61	56	23	17	16

As expected, groups, consisting solely out of students from the Generation X preferred the concept of environmental instruction, which originated in their generation and was the prevalent form of education they received regarding the environment and nature, at least in their memory, thus forming their concept of how to plan a lesson (Mangels, 2003). Furthermore, there is a slow shift of the concept from environmental instruction to environmental education and finally Education for Sustainable Development perceivable over the years, as was expected considering the gradual shift of the generations over the course of this study.

What was most striking, was the fact of students of the Generation Y and Z had not such a clear and defined concept for their education. Some preferred a more instructional approach, others followed an environmental education one, focussing on local phenomena and lacking the essential aspects like global thinking, planning for generations or topics like migration. It was not easily identifiable, where this originates, with most students simply stating “I like this better” or “This works better” during the individual interviews. A reason for this might be their own mixture of various teachers.

Apparently, the year of birth is not the sole denominator for belonging to one generation or another, but rather the set of mind. This became apparent during the interviews. One example for this is case#42: The student is a typical member of the Generation Z,

having married being just 21 years old and becoming a father at 22 for the first time. He communicates heavily online, chooses his workplace and employer carefully and is very conscious of his social and ecological responsibilities, even though he is, regarding his biological age, a Generation Y member. The methods he chose for their lesson were part of Education for Sustainable Development and he was able to convince his two older flat-mates in the discussions to use these concepts. These structures were found with many students, who did not belong to Generation Z from their biological age, but advocated the concepts of Education for Sustainable Development.

This group consisted of two Gen. Y, one Gen. X members, and used the concept of Education for Sustainable Development.

Another example is case#17: The student is also a member of the Generation Y, regarding her biological age. Being offered a feedback on the methodical approach she chose with her group, she declined, stating that she did not want to learn anything about sustainability or the possible concepts related to this, but only wished to tell the pupils what kind of taxidermies she had with her – staying with basic zoological knowledge and a strict instructional approach. Thus, there are some generational preferences in using a certain methodical approach, but there is still an individual set of mind, which needs to be considered.

The group consisting of three students of Gen. Y used concepts of environmental instruction.

What was perceivable, was a certain group effect. When those, who dominated the group process, advocated a concept, the others tended to follow. This became especially evident with two groups in 2015 and 2016. In both of them, those who preferred the concept of Education for Sustainable Development literally dragged their colleagues along, which led to an outstanding lesson on education for sustainable development.

In the interviews, students who advocated the concept of Education for Sustainable Development, had either been taught, following this concept, or acquired a deep understanding of sustainability due to personal experience. These had a higher acceptance of new methods, and a certain reluctance in using old teacher-centred methods. They wanted change to happen.

During the interviews, why a student shifted the focus from his or her initially preferred concept to another one, the students typically explained, that the focus in their group was different from their own, and that was the reason for this. In most cases, the students liked the new approach and adopted it as a part of their own concept for planning educational processes.

Discussion

There is one trouble in teaching older or in-service educators new approaches: changing one's very own, established concepts on education and, in regards to sustainability, how this competence is learned. Generation X students and those, who had similar concepts, ethics, and set of mind, as given in the definitions section of this paper, preferred following a concept of environmental instruction, rather than one of the two others. Even experiencing themselves, that these led to a very small educational attainment, did not change their preferences. This means, we have unsustainable practices that need to be addressed in teacher and sustainability educator education. This is similar to the concepts of teaching sustainability and teaching about sustainability (Iliško et al.,

2018). This became evident, with the one case mentioned in the results section, who did not want to learn about sustainability education, but rather preferred an instructional approach. Together with the students' experience, that some learning and teaching approaches offer little long-term learning outcomes shows that this elementary sustainability competence (Iliško et al., 2018) was not developed.

The same structures became evident with the other two generations. This points out that for these educators, who are not fully trained teachers, planning educational processes and the way of teaching are apparently formed by one's own set of mind and experience from being educated in a certain way.

This changed, when the students lived together with others, who had a different idea of education, which became evident, when students who initially preferred other concepts started planning a project in a group and agreed in using the other students' approach, finally adopting it. This worked out in both ways, so students initially considering a concept of Education for Sustainable Development used environmental instruction and vice versa. It can be assumed that living and planning together is an integral part of forming new ideas on education and most likely other subjects. Furthermore, experience was given as an important factor regarding the perception of an educational concept being "good" or "bad".

Taking these results into account, the perceptions and the long time planning of the emerging Generation Z raise hope that the coming years will bring a change toward a stronger identification with sustainability and the associated educational concepts. This generation's aims in life, for example, having a family at a considerable early age apparently means, that they start caring for their children and want them to grow up in a better world earlier, compared to their predecessors. This behavior can be considered typical for young parents, but might lead to selfishly trying to create a better world for one's own children, rather than for society in general (Howe, 2016).

Following this line of thought, having and planning a family or being a parent can be considered to be an integral part of Education for Sustainable Development, which needs to be addressed in the related classes and courses, even though it seems that there is little evidence of any concept on this in the available literature.

Conclusion

One conclusion from this study is that learning educators living together for a certain time influence each other and their perceptions. To use this in teacher training for Education for Sustainable Development, it could be useful to introduce "every-day-seminars" for teacher education. The concept of these seminars was used locally in church-related social work in the 1990s (Pfaff & Köhler, 1996; Günther, 2009). These circumvented the major problem with typical one- or two-weeks to, for example, a forest youth centre or similar institution with a class or group – the fact that they are staying away from home for a bigger distance, more like a class trip or holiday. Thus it is hard for a training done "somewhere else", to spill over in a normal day-to-day-routine (Pfaff & Köhler, 1996). With the "every-day-seminar", the students stay at a youth hostel/centre in their neighborhood, going to school and participate in their daily routine, like doing homework, cooking, etc. but with a focal topic, formal and informal educational processes and experiencing another way of living together. The underlying structures are akin to those in children's homes in social work (Schleiffer, 2014), and

are apparently similar to the Swedish Naturbruksgymnasium, a type of vocational boarding school for green professions with their own fields, etc. Sustainable development in Sweden can be considered to be particularly successful compared with other European countries (Ahlberg, 2009), following this concept. For teacher training purposes, this means that it might be a new approach to put teachers in a situation, where they are living and studying together, while still going to work and experience their daily routines, reflecting on their educational approaches together. This might be done during their education at a university, while going through their higher teacher examination training or at regular intervals during their professional working time. This might be considered a new form of school-based teacher training, complementary to regular approaches (Alkhalwaldeh, 2017).

Considering these findings, it might be a sustainable, holistic approach, to let teachers in training live together for a certain time during their education, as well as their professional life. Furthermore, this could be an approach for educating students as well, to further the implementation of Education for Sustainable Development, its concepts and desired learning outcomes. To delve deeper into this matter, further research will be conducted on interviews with students, who had participated in everyday seminars and similar concept 23 years ago.

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Professional Development of EFL Teachers through Rotatory Peer Supervision

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Abstract

Supervision in Iranian private language schools is carried out by one experienced teacher supervisor with too much authority. This paper reports a novel model of supervision, namely rotatory peer-supervision, in which supervision is delegated to English as foreign language (EFL) teachers themselves. In rotatory supervision, experienced teachers take turns observing each other's classes and those of their less experienced colleagues and providing constructive feedback. In this study, we investigated the possibility of employing teachers as supervisors and analyzed what they focused and what type of supervisory feedback they provided. While observing their peers' classes on a rotatory basis for 16 sessions, four experienced teachers evaluated their peer's teaching performance using a researcher-made classroom observation checklist after receiving a sandwich course on providing constructive supervisory feedback. Their evaluative comments were categorized in terms of compliments, criticisms, and suggestions. The findings revealed that the teacher-supervisors offered compliments much more than criticisms and suggestions. Moreover, critical comments were offered using non-accusatory, mitigated, and face-saving language. This study calls for further recognition of rotatory peer supervision as a viable alternative to the practiced models and further research on this under-researched topic.

Keywords: EFL teachers, compliments, criticisms, professional development, rotatory peer supervision, suggestions.

Introduction

Today, many changes have been attributed to educational settings in which the so-called relationship between the people in charge within those settings have widely been shifted; that is, the relationships have been based upon shared responsibilities rather than obeying a single authority figure (Telem, 1998). There are different characteristics attributed to teachers' *supervision* and *evaluation* which have complementary roles towards each other and both are necessary in the teaching-learning processes (Glickman, Gordon, & Ross-Gordon, 2008; Nolan & Hoover, 2005; Pawlas & Oliva, 2007). Supervision can enhance the people in charge (teachers as well as students) professionally and it is an organizational duty. Therefore, it is possible for all teachers to have the respon-

sibilities of supervisors, without taking into account their duties within the organization they are working in. On the other hand, teachers' evaluation is a kind of formal assessment which takes teachers' overall abilities into account; it is a kind of rating teachers. The evaluator evaluates the teachers regarding their skills in fulfilling the requirements of the school or institute they are working at; hence, the evaluator may observe the classes as well (Glickman, et al., 2008; Nolan, et al., 2005; Pawlas & Oliva, 2007).

So far, the effect of evaluation has remained indirect and has not yet been fully known (Ebmeier, 2003). The way of dealing with this issue in order to turn to a successful one has not been determined as a fully-fledged academic methodology because many relative effects exist regarding the idea under investigation (Peterson, 2000; Good & Weaver, 2003). According to Cubberley (1929), one major kind of supervision is evaluatory supervision in which teachers are rated, the rater talks about what is wrong and what is good in teachers' classes. The way of evaluating teachers' performance makes teachers become more efficacious or vice versa (Danielson & McGreal, 2000; Stronge, 1997), thereby improving the process of education in the long run (Teddle, Stringfield, & Burdett, 2003) and increasing the achievements of students (Ebmeier, 2003; Ellett & Teddle, 2003; Ovando, 2001; Stronge, 1997). The supervisory feedback in teacher education is widely acknowledged for its importance (e.g., Baniabdelrahman, 2004; Wilkins-Canter, 1997) as a major source of knowledge about teaching for the teachers (Russell, 1979) and guidance for their professional development. The supervisory feedback may threaten the public self-image of the teacher (Vasquez, 2004) because it may involve some evaluation of the teacher's teaching performance which often needs improvement. Therefore, it seems worthwhile to find out what feedback can be well received by the teachers. For the supervisory feedback to be effective in leading to a change in teachers' classroom practice, it should be well received by the teachers at whom it is directed. Supervision in Iranian private language schools is almost always carried out by one experienced supervisor teacher with too much authority. This paper reports a novel approach to supervision, namely *rotatory peer-supervision*, in which supervision is delegated to EFL teachers themselves.

Review of the Literature

Supervision can be regarded as a broad term taking all aspects of life into account. Wiles (1967) advocated the point that the act of supervision is not something for individual benefits; rather, it is the act of a group of people's work negotiating on a process by which they can improve the existing situation and provide a base for all the staff to grow their skills. Sullivan and Glanz (2000) pointed out that at earlier times supervision was an act of finding faults by observing a teacher's classroom. By this very definition, supervision equated to inspection which is well put by Blumberg (1980) in his book entitled "Supervisors and Teachers: A Private Cold War". Supervision is for all the personnel at schools including the teachers, administrators and other people in charge (Duke, 1987). On the other hand, Sergiovanni and Starratt (1993) considered supervision as a way of helping teachers as well as the supervisors themselves to improve their overall skills by being aware of their problems. Gebhard (1990, p. 1) defined supervision in teacher education "as an ongoing process of teacher education in which the supervisor observes what goes on in the teacher's classroom with an eye toward the goal of improved instruction". Ryan (2004, p. 44) makes it clearer by stating that "supervision is an

inquiry into practice. It is a compassionate appreciative inquiry ... In supervision, we re-write the stories of our own practice ... supervision interrupts practice. It wakes us up to what we are doing”.

Supervision is an evaluative process which can lead to some improvements within the area of education. It has been categorized into several models the most important of which are: a) *supervision as inspection* takes teachers' committed errors into account and marks them as qualified or unfit for the job (Payne, 1875; Spears, 1953); b) *democratic supervision* refers to working collaboratively in order to improve the educational process (Pajak, 1993); c) *supervision as leadership*, as pointed out by Leeper (1969), makes teachers develop some democracy in the interactions with the instructors to determine goals which both parties accept, and they should also try to build a professional leadership; d) *clinical supervision* proposes some prescriptions set by supervisors to be implemented by the teachers within the classroom in a cooperatively designed manner (Cutcliffe, Butterworth, & Proctor, 2001); e) *changing concepts model* takes alternative methods of supervision into account (i.e., developmental supervision in the early 1980s, transformational leadership in the late 1980s, and then teachers take part in some decision making processes) (Glickman, 1992). In general, the supervisors provide their comments in three moves of compliments, criticisms, and suggestions. In the light of speech act theory (Austin, 1962; Leech, 1997; Searle, 1969), a compliment is defined as a comment that points out one positive aspect in the teacher's lesson, a suggestion as a specific recommendation to improve a certain part in the lesson, and a criticism as a remark pinpointing an undesirable aspect.

Supervision has been examined from a diverse range of aspects. Hart (1929) looked at it from the standpoint of supervised teachers and wanted to analyze frequencies, aims, and contribution of supervision in the process of instruction as well as the perceptions of those who were supervised. The results showed that there was a request for more supervision visits, and it is desirable for teachers to hold post-observation conferences in order to improve instruction rather than showing some ratings. Jones (1995) studied democratic supervision with the purpose of investigating the practicality and the effectiveness of applying democratic supervision in improving instruction and found that democratic supervision contributes to the improvement of supervision. Hayes and Wetherill (1996) studied teacher's perceptions of collaboration and clinical supervision in order to examine collaboration by exploring teachers' perceptions on clinical supervision. They found that collaboration leads to improvements and changes in instruction which was attributed to the development of trust. Lam (2001) examined educators' attitudes to classroom observation as a means of professional development and appraisal and found that participants prefer peer coaching, believing that appraisal incites pressure among teachers. Ussher and Carss (2014) studied professional learning and development through returning lecturer supervisions. They found that there should be a good relationship between the supervisor and the supervisees. Moreover, the participants of the study had a positive attitude towards the supervision approach they received.

Jay and Johnson (2002) explored various facets of reflection with respect to teaching (i.e., a more specific and concrete look at the pedagogy of reflection) and provided a typology designed to guide teacher educators in teaching reflection to pre-service teachers which can be named as descriptive, comparative, and critical. Courneya, Pratt, and Collins (2008) investigated the perspectives in judging the teaching of peers. They made use of films within workshops. In those films, two expert teachers were teaching and

the participants were supposed to rate them. The results indicated that all the teachers gave full score to the teacher whose teaching methods were similar to theirs. Therefore, they contended that peers observe each other with pre-conceived notions about the best ways of teaching. Copland (2010) investigated the causes of tension in post-observation feedback. He took pre-service teachers into account and utilized field notes, audio and video recordings of feedback moves from two courses, as well as interview sessions. He reported that the first cause of tension was peer feedback, and the second cause of tension was reflection on practice among those participants within the study. The attitudes of supervised teachers were surveyed by Kayaoglu (2012) who found that supervision has no specific value regarding professional development and teachers' performance was not positively affected. Chamberlin (2000) suggested that, in many cases, teachers with opposing expectations may feel dissatisfied with a "reflective" rather than "evaluative" post-observation meeting (p. 355). Very often, what teachers expect to receive from the post-observation meeting is a balance of positive appraisal and constructive criticism.

Moreover, in the context of teaching and learning, the evaluation of the teaching performance by peers is expected to augment pedagogical components significantly. Peer evaluation is always seen as one of the most challenging tasks for teachers (Alarcão & Tavares, 2003). Formosinho, Machado, and Oliveira-Formosinho (2010, p.107) noted that the scenario of supervision underscores "the supporting roles, listening, active collaboration on agreed goals through contracts, involvement in daily educational activities, and reflected experimentation through action that seeks to respond to the identified problem".

Regarding the issue of appraisal of teachers and teacher supervision, Gebhard (1984, 1990) and Wallace (1991) proposed the idea of collaborative supervision within their models. Gebhard (1984) proposed five models of language teacher supervision as "direct supervision", alternative supervision, non-directive supervision, collaborative supervision, and creative supervision. On the other hand, Wallace (1991) suggested prescriptive supervision and collaborative supervision. As the name denotes, prescriptive supervision gives too much authority to the supervisor, and the supervisees' implemented skills within the classroom are judged by that single supervisor. Meanwhile, in this model, the supervisor is not an outsider but a figure who tries to foster supervisee autonomy. Additionally, Wallace (1991) points out that collaborative supervision can enhance the supervisee's affective factors and induce long term development (see Ali, 2007; Chamberlin, 2000; Stoller, 1996).

Taking into account the premises of collaborative supervision, the role of feedback in supervising teachers has always been important (Oprandy, 1999; Roberts, 1998), and most of the studies on language teacher supervision have concentrated on the discourse of observation and the provided feedback (Bailey, 2006; Gholami, Sarkhosh, & Abdi, 2016; Hooton, 2008; Wajnryb, 1994; 1995; 1998; Wallace & Woolger, 1991).

According to Bailey (2006), supervisors' comments on the supervisees' performance within the classroom is often a demanding job since the supervisor is sometimes going to deliver some negative and unwanted notes. Bailey (2006) suggests that the supervisors are sometimes engaged with the idea of face-saving and face-threatening issues when giving feedback to supervisees, and therefore, they often mitigate their discourse regarding the delivery of criticism to the supervisees (Wajnryb, 1994; 1995; 1998).

As this brief review of the literature illustrates, there has been a lot of attention to research studies on supervision and different effects and models of supervision. Moreover,

the major concern of the studies on supervisory feedback has mostly been centered on what a single supervisor does in classes, what comments they offer in terms of three moves of compliments, criticisms, and suggestions (Courneya, et al., 2008; Lam, 2001; Thies-Sprinthall, 1984). Even in the models proposed by Gebhard (1984, 1990) and Wallace (1991) regarding collaborative supervision, there is no sign of collaboration within the task of supervision. They have just taken into account the nature of providing feedback to the supervisees.

Through this study, we are suggesting an alternative model of supervision, namely *rotatory peer supervision* in which teachers supervise each other. By rotatory supervision, we mean that (experienced) teachers take turns observing each other's classes and providing constructive supervisory feedback in written and/or oral modes. To the best of the researchers' knowledge, there has not been any study in the literature in which teachers are assigned to supervise one another on a regular and flowing basis, and this mode of supervision has eluded researchers' attention. However, given the ever-growing popularity of scaffolding, peer feedback, and peer observation notions in both teacher training and language learning environments, rotatory peer supervision, as a promising line of research in supervision, seems to be a viable measure in line with these theoretical trends and is worth to be tried out for professional development of teachers.

Method

Context of the Study and Participants

This study was conducted at a private language school in Naghadeh, a small town in the North-West of Iran. As a common practice and procedure, the teachers in this school have been recruited after taking part a crash teacher training course, and as their corporate policy (Richards, 2002), the institute vigorously promoted adherence to the tenets of communicative and interaction-based frameworks of language teaching. The participating teachers had BA, MA, and PhD in English language teaching. Through convenience sampling, 12 male and female teachers were randomly selected to take part in this study as main participants of the study with supervisee or supervisor roles. The teachers' ages ranged from 24 to 40 and their years of teaching experience varied from three to fifteen years. Not all the 12 teachers necessarily acted as supervisors, but all of them were supervised in a rotatory manner. Out of this pool, four teachers with minimum five years of teaching experience and respective educational credentials in teaching English as a foreign language (TEFL) (one teacher with BA, two with MA and one with PhD in TEFL) were selected based on purposive sampling.

The textbooks used within the institute were World English series by (Johannsen, Milner, & Tarver Chase, 2010) for adults, First Friends (Iannuzzi, 2013), and Family and Friends series (Simmons, Thompson, & Quintana, 2010) for young learners and teens. Each book in these series was covered in three to five semesters based on the language learners' levels. The prevailing methodology in the institute was to adhere to communicative methodology and methodological instructions, activities, and materials in teachers' guides. A substantial share of the course assessment was allocated to classroom participation scoring.

There was an institute assigned supervisor who had announced visits to classes and had always held post-observation conference meetings after the visits. However, based

on the anecdotal evidence from one to one short interviews with the teachers and two short focus group interviews with two smaller groups of teachers from the research site, it was felt that this type of feedback was not as constructive as it should be, and has become more routine and repetitive. Even some of the surveyed teachers adopted a confrontational approach to some of the comments they had received in post-observation conferences. Given this and the objectives of this study, it was decided that this research site looks to be an optimal context to try out the idea of rotatory peer supervision and how teachers help themselves in action.

Procedure and Data Analysis

As part of a larger study which examines rotatory peer supervision from multiple aspects, this qualitative case study examined the professional development through rotatory peer supervision where EFL teachers supervise each other's classes. There were four teachers acting out as supervisors. Each teacher-supervisor observed four of his/her colleagues' classes and was asked to provide constructive supervisory feedback in written form. All these supervisors and teachers were invited to voluntarily participate in this research, and their formal consents as teacher-supervisors, observed teachers, or both were elicited. The teachers acting as supervisors received a crash-course on providing constructive supervisory feedback, and sandwich feedback. In this type of feedback, comments are shaped in the order and load of *strengths* (compliments) followed by *areas for improvement* (i.e., constructive criticisms and suggestions) and are rounded off with some summative or re-echoing of strengths (i.e., compliments) (see Daniels, 2009; Von Bergen, Bressler, & Campbell, 2014). Opportunities were given to the participating teachers to simulate peer-to-peer scaffolding and constructive feedback teacher report completion with the use of a classroom observation checklist devised for this purpose. To this end, they watched two video clips of their colleagues' classes (one adult class and one young learners' class) while jotting down the three feedback moves of compliments, criticisms, and suggestions in the checklist. Later, they shared their constructive feedback in the class and brainstormed on the comment types, their sequence and weight, and the best language to word and express them with the assistance of the second researcher of the study who had a rich experience of teacher supervision, supervisory board management, and teacher training background. Throughout the course, the would-be supervisor teachers simulated offering constructive feedback to each other's micro-teaching practices similar to those in the language school where they were to practice rotatory peer supervision. Moreover, with the purpose of enriching their knowledge on the topic, they were also supplied with the relevant literature on giving constructive supervisory feedback and the appraisal of teacher performance to the supervisees (Bailey, 2006; Wragg, 1999; Von Bergen, et al., 2014). In addition, as evident in Table 2, one checklist for supervision developed by the second author for classroom observation purposes in pre-service and in-service teacher education programs and MA practicum courses in TEFL was made available to the teacher-supervisors to draw upon in crafting their feedback reports in terms of compliments, constructive criticisms, and suggestions during classroom observation and on-the-spot teacher performance appraisal. Table 1 provides some sample extracts of compliments, criticisms, and suggestions given by teacher-supervisors of the present study in the respective columns for the three moves.

Table 1
Data Categorization of Constructive Feedback Moves

Constructive Feedback Moves	Extract 1	Extract 2	Extract 3
Compliments	<i>Teacher's pronunciation and volume was good</i>	<i>The teacher was absolutely great at designing the ways of group working</i>	<i>The teacher managed the class setting and overall management in a perfect manner</i>
Criticisms	<i>The teacher needs to be more fluent</i>	<i>Although he tried to adapt himself to the learners' language level, he still needs some sorts of further practice.</i>	<i>The teacher failed to control the students, and they frequently interrupted the discussions.</i>
Suggestions	<i>The teacher should utilize specified time for each activity and prepare a lesson plan before the class-time</i>	<i>The class would be better managed if the teacher adds some more fun to the class</i>	<i>It is better for her to make use of specific types of cooperative learning in order to increase learnability.</i>

It should be noted that the same instrument has widely been in use by authority-figure supervisors in a highly accredited private language institute in Tabriz, Iran. Following the orientation program, teacher-supervisors were assigned to observe four sessions of their different colleagues' classes and provide constructive supervisory feedback (CSF) after each session. Afterwards, following Anderson and Radencich (2001), Bowman (2001), Glenn (2006), Izadi (2016), and Murdoch (2000), the teacher-supervisors' written feedback reports and comments on the checklist were analyzed and categorized in terms of the proportions of compliments, criticisms, and suggestions based on the checklist. Moreover, their overall comments at the end of the checklist was further analyzed by the researchers, and further instances of value-laden comments concerning the three feedback moves were identified and added to their own lists in the checklist. Frequencies and percentages of the comments for each move from 16 completed observation reports in relation to the observation criteria of the checklist are then reported and discussed. To establish inter-coder reliability, both researchers independently tabulated the comments in this part, and the rate of agreement was found to be high ($K=0.91$). Both raters discussed the discrepancies in categorization which happened most often in the cases of suggestions or criticisms until they reached an agreement.

Results

This study is aimed at investigating rotatory peer supervision in action and account for the rates of compliments, criticisms and suggestions experienced teachers provide to their colleagues following the observation of their classes while drawing upon a classroom observation and evaluation checklist often used by sole supervisors in Iran. Table 2 indicates a representative sample of three major types of constructive feedback given by these rotatory supervisors based on their 16 checklist-prompted observations reports. It is noteworthy that some of the instances may look like suggestions, but they are included in criticisms as the teacher supervisors themselves noted them in criticism column of the checklist.

Table 2

Sample Extracts of Compliments, Criticisms, and Suggestions in Rotatory Teacher Supervisions

Observation Criteria	Compliments	Criticisms	Suggestion
Teacher's proficiency (pronunciation, accuracy, fluency, appropriacy)	– Teacher's pronunciation and volume was good, – Excellent.	The teacher needs to be more fluent.	It is better if he could work a bit on his fluency.
Class management	The teacher managed the class setting and overall management in a perfect manner.	The teacher failed to control the students, and they frequently interrupted the discussions.	The teacher can assign some language learners as co-teachers to help her.
Level adaptation (teacher talk)	The teacher was good enough to be comprehensible to the learners.	Although he tried to adapt himself to the learners' language level, he still needs some sorts of practice.	She should take into account the language levels and improve her speaking skills to be adapted to high-level classes (here IELTS).
Sequence and pace of materials and activities/Time management	There was a well-structured lesson plan and the teacher pursued it.	All the time was given to work-book without letting the students get involved.	The teacher should utilize specified time for each activity and prepare a lesson plan before the class-time.
Pair/group work	The teacher was absolutely great at designing the ways of group working.	There wasn't enough pair/group work.	It is better for her to make use of specific types of cooperative learning in order to increase learnability.
Corrective feedback	She provided fair and to the point constructive feedback.	The provided feedback was vague rather than being constructive.	In this class, the teacher should have used written corrective feedback because the learners were paper based rather than orally oriented.
L1 use	She is perfect at managing the words English so as to be comprehensible for the learners. L1 usage is in the lowest rate possible.	Before providing any specific examples in order to clarify the meanings of the instructions or vocabularies, he provides the students with Farsi equivalents as the first resort.	—
Command of the teaching materials and lesson preparation/planning	She is good at teaching the materials in the specified sequence within her lesson plan.	It seemed he was jumping from one page to the other.	—

Sequel to Table 2 see on the next page.

Sequel to Table 2.

Discipline/Class management	The teacher had the class in hand (<i>was in charge of the class</i>) and the students were following the rule implemented by the teacher.	The climate of the class was really cold despite the fact that they were silent within the classroom.	The class would be more fruitful by adding some fun to the class.
STT vs. TTT	The teacher allocated most of the class time to the students.	There was little STT and TTT was mostly in L1.	The teacher should allocate more time to students and he should act as a guide instead of telling most of the comments and explanations.
Classroom climate/sense of humor/fun	There was a formal class blended by a very good amount of humor.	The teacher had a poker face.	The class would be better managed if the teacher adds some more fun to the class.
Student involvement (all sts)	The students were involved in most of the activities on an equal basis.	The teacher could have involved all the students; there were some silent students not being engaged by the teacher.	—
Use of relia, personal life examples, schematic knowledge activation	The teacher brought so many real objects to the classroom and narrated some personal experience. At the same time, she utilized previously covered lessons to make the new lesson clearer.	The only material used in the classroom was the book.	The teacher could add some pictures and videos from YouTube.
Adherence to Institute Guidelines & Term Programs	The teacher was in line with the syllabus provided by the institute.	The teacher did not teach the grammar according to the way provided by the supervisor in the teachers' meeting.	—
Teacher's mobility/use of whiteboard	She used the white board very often and the way she stands in front of it was perfect.	The teacher could not see the students while writing on the whiteboard.	The teacher should study the book written by Adrian Doff in which the way of using whiteboard correctly is taken into account.
Teacher's optimal use of audio-visual facilities	She was great at using the existing facilities.	No audio-visual use.	It was better to use more visual materials instead of using only listening activities.
Elicitation/questioning	He tried to elicit the answers by continuous questions instead of giving an answer by himself.	He immediately provided the answers.	The teacher could make the questions easier by tearing it into parts.

Sequel to Table 2 see on the next page.

Instructions/mode- ling	The teacher made use of many exam- ples; a kind of inductive way of teaching grammar.	The instructions were ambiguous for the students.	The teacher could provide more examples and give time to the students to do the exercises.
Teacher as one communicator	Not at all. All the students were free to raise questions, and there was a good debate on what the students were asking each other.	She didn't let the students com- mence the conversations or raise their own ideas on some specific debates.	He needs to work more on that.
Rapport/mutual respect	Both the teacher and the students were so respectful to each other.	—	—
Presentation (warm- up/topic activation + teaching)>>practice >> proceduralize>> feedback/ assessment	Great warm up.	He just jumped to do the work book without any preparation.	It'll be a good idea to follow the PPP sequence to have a better prepared class with better results.
Peer feedback/colla- borative tasks	Great. The teacher let the students give peer feedback at appropriate times.	The only person responsible for the feedback was the teacher herself.	It will be a good idea to make the learners write their peers' errors and then discuss them at the end of the class.
Appearance/posture, voice, tone, eye contact, punctuality	Lovely tone and perfect eye contact to cover all the students.	She was late and embarrassed.	—
Creativity/initiatives	He was great at offering various activities.	There were few situations in which the teacher used new subjects or materials.	The teacher can make the class more excited by surprising the students offering some new games or activities at the time of the class.
Formative assess- ment (CP scores)	The students are tested continuously and the teacher clarifies the next session activities based on the results obtained from the tests.	—	He needs to assess and analyze the students' knowledge continuously and specify their weak points.

In order to delve further into the exact areas of the observation criteria within the checklist, the researchers tabulated the data in order to rank the highest numbers of compliments, criticisms, and suggestions vis-à-vis the observation criteria in the checklist (Table 3).

Table 3
Ranked Order of Compliments, Criticisms, and Suggestions in Relation to Key Observation Criteria

Ranks	Compliments	Criticisms	Suggestions
1	Teachers proficiency (10)	Teacher's optimal use of audio-visual facilities (8)	Time management, STT Vs. TTT, Elicitation, Formative assessment, and Pair work (6)
2	Class management and Teacher's mobility (9)	Level adaptation, classroom climate, and STT Vs. TTT (6)	Teacher's proficiency, Level adaptation, Corrective feedback, and Peer feedback (5)
3	Level adaptation, Appearance/Posture, STT Vs. TTT, Teacher's optimal use of audio-visual facilities, Teacher as one communicator, Mutual respect, PPP, and Creativity (8)	L1 use, Elicitation, and peer feedback (4)	Use of realia, Teacher's mobility, Teacher's optimal use of audio-visual facilities, Instructions, Teacher as one communicator, PPP, Creativity, Class management, Classroom climate (1)
4	Discipline, Classroom climate, and Student involvement (7)	Pair work, Planning, Student involvement, Use of realia, Instructions, and Appearance/Posture (3)	—
5	Time management, Corrective feedback, L1 use, Planning, Use of realia, Adherence to institute guidelines, and Elicitation (6)	Teacher proficiency, Class management, Time management, Corrective feedback, Adherence to institute guidelines, Teacher's mobility, Teacher as one communicator, PPP, and Creativity (1)	—
6	Instructions (3)	—	—
7	Pair work, Peer feedback, and Formative assessment (2)	—	—

Table 3 provides further information on the frequencies of each observation criterion in classroom observation checklists. The table reveals that regarding compliments, *Teachers proficiency*, *Class management and Teacher's mobility*, *Level adaptation and Appearance/Posture* received ten, eight, and seven comments, respectively. The highest number of criticisms went to *Teacher's optimal use of audio-visual facilities*, with five comments, and *Level adaptation, classroom climate, and STT Vs. TTT* with four comments. Based on this table, there are few suggestions compared to the other two moves. *Time management, STT Vs. TTT, Elicitation, Formative assessment, and Pair work* with six suggestions each were areas receiving the highest number of suggestions. There were no instances of criticisms concerning *Formative assessment* and *Mutual respect*. On the other hand, no teacher-supervisor provided suggestions regarding *L1 use, Plan-*

ning, Student involvement, Adherence to institute guidelines, Mutual respect, and Appearance/Posture. The findings also revealed that the only criterion which has not been given any suggestions and criticisms is *Mutual respect*. This can be traced back to Izadi's (2016) idea regarding over-politeness of Iranian teachers and students as well as the underlying policy within the context of Iran.

Based on the findings in Table 3, we then estimated the overall distribution of compliments, criticisms, and suggestions in terms of frequency and percentage as illustrated in Figure 1. Analyses of the data revealed that the frequencies of the compliments were 172, criticisms 65, and suggestions 59 (see Figure 1 for their percentage).

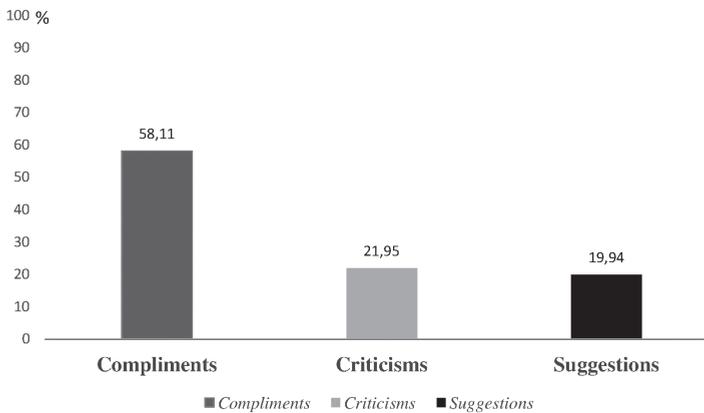


Figure 1. Overall distribution of compliments, criticisms, and suggestions in percentage

As the findings reveal, compliments constituted the highest rate of comments (almost 60%), while fairly similar proportions of criticisms and suggestions were offered to the supervisees by the teacher-supervisors in this study.

Discussion

The previous research on teacher-supervisors accounted for the supervisory comments given to EFL teachers through the lenses of one single supervisor (Alarcão, 2009; Bradley & Kottler, 2001; Schön, 1987; 1983). However, this study was an attempt to see how teachers provide professional constructive feedback to their colleagues in the same workplace. The results revealed that the teacher-supervisors tended more to provide some positive constructive feedback regarding their colleagues' overall teaching and favored the supply of compliments more than criticisms and suggestions. One plausible explanation for the distribution of comments in our data could be that the supervisor teachers were compelled to be over-polite to their colleagues. This finding seems to be congruent with that of Izadi (2016) who found that over-polite evaluations constitute professional discourses and Persian cultural practices at times could even conflate with professional practices due to over-politeness. As was the case in the present study, professional discourses are places where individuals face a conflict of professional roles and the wider societal roles. Over-politeness could hinder the judicious delivery of criticisms and suggestions, and at the same time an issue which justifies the abundance of compliments among the given comments.

The higher rate of compliments in teacher-supervisors' comment could be related to the over-use or under-use of face-saving and face-threatening strategies (Bailey, 2006). The supervising teachers in this study may have had reservations on giving too many criticisms due to their social relationship with their peers. Nonetheless, they were not the sole praise-providers. They tapped their colleagues' areas of problems by criticizing them for what they did and also by suggesting some new and helpful ways to make them develop professionally. It is noteworthy that, in line with Wajnryb (1994, 1995, & 1998), even at the time of criticism, the teacher-supervisors have tried to mitigate their criticism voices (e.g., "*Although he tried to adapt himself to the learners' language level, he still needs some sorts of practice*", "*The teacher could have involved all the students; there were some silent students not being engaged by the teacher*").

The present study discloses valuable results regarding the idea of peer-to-peer scaffolding and teacher constructive feedback by which the teacher-supervisors have tried their best not to demotivate their colleagues by just highlighting problematic areas. This study revealed a sense of empathy among the participants, by which the supervisors transformed and toned down the beliefs about the unwelcome visitor and bad face of supervision by rotatory peer-to-peer supervision. They showed that they are supervising the classes not only to tap problems but also to encourage their colleagues to keep on the good job, and at the same time provide a wake-up call and make them reform some existing problems within their classes. The findings of this study were consistent with those of other studies which considered a number of strategies to be effective in providing constructive feedback in teacher education contexts, such as namely the use of questions (Vásquez & Reppen, 2007), compliment delivery before criticisms or suggestions (Anderson, 1997; Anderson & Radencich, 2001; Bowman, 2001; Glenn, 2006; Murdoch, 2000), offering mild advice and suggestions (Vásquez, 2004), leading the interns to pinpoint their own problems (Feiman-Nemser, 2001), provision of a comfortable atmosphere for the feedback conferences (McGlenn, 2003), and striking a balance between positive and negative comments (e.g., Glenn, 2006; Murdoch, 2000) in feedback delivery. The findings of the present study are also consistent with Khalili's (2016) study. He investigated the way of delivery of compliments, criticisms, and suggestions in his study. Unlike our study, Khalili's study took into account the comments provided by one single supervisor. He found out that the supervisor had the desire to create positive feelings for the teachers by starting with something good before providing criticisms and suggestions to develop teachers' confidence. At the same time, he also found that the supervisor mitigated his tone of criticisms. This instance taken from his findings illustrates this: "I was thinking maybe the first exercise was a little bit slow" (Khalili, 2016, p. 41).

Conclusion

The study examined the three moves of compliments, criticisms and suggestions in rotatory peer-to-peer supervision. These moves could be utilized by the supervisors to promote the effectiveness of their feedback in the practice of rotatory peer supervision. This study found that the teacher supervisors did their best to create a supportive atmosphere in the feedback reports with a remarkable share of the feedback packaged in a way to bolster their empathy and support to the teacher when the class conduct at times went against the supervisor teachers' expectations. To sum up, the results of this study revealed that teacher-supervisors promoted their colleagues' professional development

by providing constructive feedback through the checklists with a judicious juggling among the three moves of compliments, suggestions, and criticisms. Moreover, the analysis of the observation checklists revealed that teacher-supervisors gave compliments at a higher rate and used intensifiers (e.g., “*The teacher was absolutely great at designing the ways of group working.*”) to enhance the positive force of their compliments. Besides, the supervisors were very careful in delivering criticisms, and used mitigators to soften their writing styles. The present study shed more light to supervisory practices via the use of the checklists provided for the teacher-supervisors with which they could raise their compliments, suggestions, and criticisms in order to make the supervised teachers develop professionally. The findings in this study could inform policy makers and education managers on the potentials of peer-to-peer constructive teacher feedback. Rotatory peer supervision deserves more attention, and we hope that this study could be of help in institutionalizing this type of supervision as one option among other supervision models in the professional development of teachers.

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The UN Sustainable Development Goals and Teacher Development for Effective English Teaching in Bangladesh: A Gap that Needs Bridging

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Abstract

This article takes up the opportunity offered by the United Nations' *Strategic Development Goals* to examine provisions for the selection, recruitment, training and professional development of secondary English teachers in Bangladesh. Qualified and trained teachers are considered as essential to effect the changes in English teaching and learning planned in national education policy. Since the adoption of a communicative approach to language teaching, initiatives have been taken to train teachers to teach English in this approach, and particularly to use multimedia equipment in their teaching; however the adequacy of these provisions is questioned in existing research and in media debates. This article starts with a brief description of the education context, highlighting the global *Strategic Development Goals* and local secondary English teaching. A review of existing recruitment and professional development provisions for secondary English teachers follows. Then project-based training programmes, which are funded and managed by external donors and aid agencies, are critically examined. Finally emerging issues and recommended changes are discussed.

Keywords: sustainable development goals, teacher education, Bangladesh, teacher development, pre-service, project-based.

Introduction

Sustainability is a multi-faceted concept. In contemporary discourses (for instance Adams, 2006; James, Magee, Scerri, & Steger, 2015; Kates, 2010) it encompasses concern about the future of our planet and its natural resources, concern about the preservation of particular habitats and the life forms within them, preservation of the human race, and the preservation of the quality of life as it is currently experienced. The concept of sustainability also addresses the issue of whether initiatives and practices have the capacity for continuation. Overall sustainability is concerned with the future and with what needs to be done to ensure well-being in the future. It has become a broad-based concept

that is adopted by many educational organisations as a guiding principle for development. For instance, a recent university webpage (University of Canterbury, 2018), following the model of the 2005 World Summit on Social Development, announces the launch of its Sustainability Framework by defining sustainability “as development which consists of environmental sustainability, social sustainability, and economic sustainability.” Recent articles in this journal have focused on a multi-faceted range of educational topics relating to sustainability, including gender equity (Badjanova, Pipere, & Ilisko, 2017), urban sustainability (Mammadova, 2017), views of secondary school science teachers (Aldahmash, Alshmrani, & Almufti, 2017), entrepreneurial education (Vaicekauskaite & Valackiene, 2018) and digital learning (Jirgensons & Kapenieks, 2018). This article adds discussion of teacher development in Bangladesh.

Increasingly discussion of sustainability is accompanied by realisation of global interdependence. The United Nations (2015) *Sustainable Development Goals* are an example of a global endorsement of the need for concerted commitment to preservation of peoples as well as of the planet, and it is noteworthy that the first two goals are the elimination of poverty and hunger. The so-called *developing* nations of the world are signatories who are committed to action on the attainment of the goals at the same time as they are the objects that the goals primarily address. They are called upon to achieve global standards at the same time as it is implicitly acknowledged that they have further to go and need to do so with limited resources. Such a predicament faces Bangladesh in its striving to improve its education system.

The *Sustainable Development Goals* provide an agenda for global educational change that is directed towards achieving the three interrelated dimensions of sustainable development: economic, social and environmental (United Nations, 2015). Bangladesh is a signatory to the agenda and it is challenged to achieve global future-focused goals at the same time as it plays *catch-up* with providing teachers and infrastructures to its population of 170 million. The situation has embedded difficulties.

The General Assembly of the United Nations made the following commitment:

We commit to providing inclusive and equitable quality education at all levels – early childhood, primary, secondary, tertiary, technical and vocational training. All people, irrespective of sex, age, race or ethnicity, and persons with disabilities, migrants, indigenous peoples, children and youth, especially those in vulnerable situations, should have access to life-long learning opportunities that help them to acquire the knowledge and skills needed to exploit opportunities and to participate fully in society. We will strive to provide children and youth with a nurturing environment for the full realization of their rights and capabilities, helping our countries to reap the demographic dividend, including through safe schools and cohesive communities and families. (United Nations, 2015; Clause 25)

The declaration is an explicitly challenging one with the overarching aim “to free the human race from the tyranny of poverty and want and to heal and secure our planet” (ibid). The fourth of the seventeen goals centres on education with the mandate to “ensure inclusive and quality education and promote lifelong learning opportunities for all” (United Nations, 2015). The 2018 U.N. report on the progress of Goal 4 states that a lack of trained teachers is one of the key factors that is “jeopardizing prospects for quality education for all (United Nation, 2018).”

This article examines the state of and the challenges facing teacher development within Bangladesh's overall project of educational improvement. It focuses on one particular area of Bangladesh's current education policy and curriculum: the teaching of English to all students from school-entry level, and examines the effectiveness of current processes of teacher development for this purpose. The teaching of English may be seen to be aligned with Targets 4.1, (ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes), 4.4 (substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship) and 4.7 (ensure that all learners acquire the knowledge and skills needed to promote... a culture of [among others]... global citizenship...). The degree to which the learning of English language is required to achieve these targets and the overall goal of quality education is open to contestation. What is important is that government policy has strategically linked English language to economic development and to the ability to contribute and compete in the global area and so made English compulsory throughout schooling. Since it is compulsory, then quality teachers of English are needed. If it is badly taught, not only will it fail to achieve the goal of contributing to personal, social and national development: it will contribute to a sense of failure and inadequacy. Other researchers have also examined the importance to education for sustainable development of effective teaching of second languages. For example, Mehrparvar and Karimnia (2018) claim that the learning of a second language fosters ability to function in different socio-cultural contexts and to communicate effectively and creatively in such contexts, and Sundh (2016) argues that since English has become the lingua franca in international relations, competence in the language is necessary for young learners.

First, this article traces the contextual and historic background in which English language teaching and teacher recruitment take place in Bangladesh. Then it reports and discusses aspects of a research project (Al Amin, 2017) investigating the overall conditions of English language teaching. Finally, in keeping with the United Nations Strategic Development Goals, it discusses strategic priorities for teacher training and professional development and makes a number of recommendations. Although the article focuses on the preparation and development of teachers who will teach the English language, many of the problems examined apply more generally to teacher education in Bangladesh.

Historic Context

Bangladesh emerged as a nation in 1971, following several hundred years of colonising occupation, first by the British and then by Pakistan (Islam, 2007). These years of colonisation played a significant part in making Bangladesh a 'developing' country. They also promoted the role of the English language and shaped the development of public education and of systems for teacher training.

Throughout the British empire English was the language of power and therefore dominated public service and public education. By the time Britain withdrew, English was well established as a widespread second language. British systems of education were also well established. After the partition of India, despite nationalist protests in the newly formed independent countries, English remained important because of its growing importance in print and electronic media and in international communication and trade

(Crystal, 2004). Within the somewhat artificially forged union of West and East Pakistan English was by default the easiest means of communication (Hamid, 2009). The rich would send their children to English-medium schools and English was the medium of higher education. Despite intermittent efforts to discourage English in favour of the national language, Bangla (Hossain & Tollefson, 2007), the imperatives of international trade and the dominance of English language in academic and economic dealings (Crystal, 2004) have led English to become a compulsory subject from Class I (Hamid & Baldauf, 2008).

Current Context

After a period of struggle to develop a formal education policy, in 2010 the government of Bangladesh legislated an Education Policy designed to provide access to education to all its citizens and a curriculum that called for the development of life and social skills as well as equipping them with skills needs to compete in the global community (Bangladesh Ministry of Education, 2010). Competency in English is emphasised as one of these skills.

The Bangladesh education system is a centralised education system administered by various wings of the government. In the year 2015 there were 9,743,072 students enrolled in primary schools, 9,540,102 students enrolled in secondary schools and 3,678,869 students enrolled at college level (BANBEIS, 2015). The project of supporting the learning of such a large number of students is a daunting task for a developing country and is accentuated by poverty, unemployment, lack of infrastructures and recurring natural calamities such as flooding and land erosion.

Nevertheless, education is seen as primary means to effect national development, and this view is reinforced by the United Nations' emphasis on education as a key strategic development goal. A number of initiatives have been taken including increasing budget for education, increasing infrastructural facilities, undertaking projects to train teachers, offering free education up until class twelve and offering stipends to keep young people at school instead of working as cheap labour. As will be further discussed later, many of these initiatives have been undertaken with the support of international loans and have involved international consultants.

There have been specific initiatives to improve secondary English education, and one the major initiatives has been the adoption of a curriculum based on a communicative approach to language learning. Nevertheless, there is repeated criticism in research findings of the quality of English language teaching in Bangladesh secondary schools and of the lack of communicative competency in school leavers who have not attended specialist English-medium schools (Ali & Walker, 2014; Choudhury, 2010; Hamid & Baldauf, 2008; Maniruzzaman & Hoque, 2010; Rasheed, 2017).

Currently there is no systemic process of pre-service teacher training or of teacher selection, although there are plans for the formation of a national teacher accreditation council that will oversee the quality of teacher education. To a large extent becoming a teacher in the existing context is a default position. There is only one selection process for public service and that is initially on the basis of a national examination. Those whose scores are not high enough to gain Bangladesh Civil Service (BCS) jobs are often recommended for employment as government high school teachers (Ahmed, 2017).

None specifically applied to become a teacher, and most would see it as a second rate job. Nevertheless because of the scarcity of jobs in Bangladesh they would begin teaching and many would again compete for the BCS examination, hoping to get a higher score and leave teaching. Teachers in non-government schools are appointed by the head teacher in conjunction with the School Management Committee although there are government guidelines and requirements to finalise such appointments. It is expected that a teacher has a subject degree, but probably not a qualification in education. For the most part teacher training in government and non-government schools takes place after teachers have been appointed to a school, largely through short courses.

Methodology

Research Methodology

The discussion in this article draws on data from a survey of 216 teachers, interviews with teachers, teacher educators, students and parents, and collation of a range of government and other official reports. The survey examined teachers' understandings of curriculum expectations, their actual practice and the factors that influenced their practice. Following analysis of the data from the survey a further qualitative component to the research was developed. This consisted of open-ended interviews, collated through a snowball approach (Bryman, 2015) with students (n-42), teachers (n-35), teacher trainers (n-12), principals (n-4), parents (n-12), and other related professionals (n-15), observation of practice and content analysis of various official documents, statistical records and media accounts.

In most cases the interviews took place over several sessions and were audio-recorded. However significant information sometimes emerged while talking to participants informally on the way to the school or in their home or while over a cup of tea at a nearby tea-stall. In that case there was follow-up over the phone and notes were taken manually. In all cases participants were asked to give their informed consent according to the requirements of our university's ethics committee.

Research Participants

All the 216 participants of the survey were English teachers within the secondary schools when they took part in the survey. Participants were selected from both non-government and government high school. A majority of participants were attending 28 days in-service training on communicative language teaching in their various neighbouring teacher training colleges.

In the qualitative component, the 42 students included secondary students, undergraduate university students, graduates and several school 'drop-outs'. The 35 teachers were predominantly secondary school English teachers, but also included several head teachers and several Madrasha¹ teachers, and several teachers of other subjects who taught English in private tuition. The 12 teacher trainers were all from government Teachers Training Colleges. The 12 parents were all actively engaged in providing English tuition for their children. Other participants were from a range of professions that required competency in the English language.

All names were used as pseudonyms.

Research Results

The survey revealed a significant gap between the participating teachers' understanding of the expectations of the curriculum and their actual practice. For example, there was a predominantly negative response to the suggestion that an effective English teacher "is someone who teaches only what will be important for the final exam", but at the same time most of the respondents felt pressure from principals, students and parents to teach in ways that would match the examination format. Respondents also identified a number of barriers to effective English teaching, including lack of trained teachers and lack of understanding of the principals of communicative language teaching, failure to use the mandated textbook, overreliance on commercial guide books and teachers' practice of pressuring students to come for private tuition, teachers' low salary, high student numbers, lack of facilities, fear of English, family poverty, absenteeism, and lack of English environment in and outside school.

The qualitative component yielded a rich array of narratives of personal experiences of graduates, parents, students, teachers, and teacher educators respectively, as well as a compilation of accounts from media and official records about the need for competency in English, the impact of examinations, the training of teachers, the differences between rural and urban contexts and the power of global influences. Collectively these led to a "mapping" of the field of English teaching that is reported in Al Amin (2017).

In the pages that follow there are details of the findings which concern opportunities for pre-service and in-service teacher training, selection, recruitment and empowerment of teachers.

Pathways to Become a Secondary English Teacher in Bangladesh

The minimum qualification required to become a secondary school teacher in Bangladesh is to pass a three-year Bachelor degree. Those who have some English in their degree are eligible to teach English at the secondary level, as well those who have majored in English.

For a B.A. (pass) course students may study a mixture of prose, poetry, and grammar. Students' reading, writing and grammatical knowledge are assessed through a final examination, but there is no provision for assessing students' oral or listening skills. Majority of the public and private universities in Bangladesh offer a four years B.A. (Hons) programme in English and one year M.A. in English. Studying English in a reputed public university in Bangladesh is very competitive and places are in high demand, and graduates can, and do, apply for many other jobs as well as for teaching.

Institutes of Education and Research of several government universities, such as Dhaka University, Chittagong University, Rajshahi University, offer a four-year Bachelor in Education degree, and the government Teachers Training Colleges (TTCs) have recently started a four year Bachelor in Education degree under the National University. These courses focus in education in general and teaching and learning but again graduates of these courses can, and do, apply for many other jobs. Many of these institutions, especially the TTCs, also offer a one year Bachelor in Education (B.Ed), mainly for in-service teachers.

As stated above, teachers for government secondary schools are recruited through the government administered central examination. For non-government high schools

there is no recruitment examination at the national level. However, now there is a requirement for prospective teachers to pass the Non-Government Teachers' Registration and Certification Authority's (NTRCA) examination (Non-Government Teachers' Registration and Certification Authority, 2017) prior to recruitment by the school. It is only after joining a school that a teacher needs to complete a one year B.Ed programme from one of the teacher training colleges. For many teachers opportunity to meet this requirement does not occur for considerable time, and some miss out altogether. A significant number of teachers start teaching English without having any professional training. Sometimes teachers of other subjects teach English due to the shortage of English teachers in secondary schools.

In-service Training and its (in)Adequacy

Given that the majority of secondary school teachers in Bangladesh start their teaching career without any teaching qualification or training, in-service training and development assumes great importance.

BANBEIS data showed that 68.8% of secondary teachers were trained in some kind of training including B.Ed, Dip. Ed or M.Ed (BANBEIS, 2015). However, the BANBEIS (2015) data also revealed that 52% of secondary English teachers had only one course of English in their undergraduate level degree, 23% of teachers who were teaching English did not study English at all at undergraduate level and 4% of teachers only had a higher secondary qualification. These statistics show that a high percentage of English teachers started their teaching career without a sound background in either education or their subject field.

In-service training for the secondary teachers in Bangladesh can be divided into two main categories: training programmes that are ongoing and financed by the Bangladesh government (mainly provided by the TTCs and the National Academy for Education Management), and partnership-funded project-based short training courses. The duration of these courses ranges from several days to one month. Project-based training courses are mainly financed by developed countries or by financial institutions like the World Bank or the Asian Development Bank (ADB) as a combination of grant and loan.

Since the adoption of the CLT approach the Bangladesh government has initiated many externally funded projects to improve the learning and teaching of English, including the Teaching Quality Improvement (TQI) project which aimed to train 28,000 English teacher (English in Action, 2009), the English Language Teaching Improvement Project (ELTIP) (Farooqui, 2010), and the English in Action (EIA) project which is a jointly funded project by the Department of Foreign Investment of the UK (DFID) and the Bangladesh government. The National Curriculum and Textbook Boards (NCTB), and the National Academy of Educational Management (NAEM) also arrange a range of training courses.

In addition, training courses for English teachers are offered by some universities, such as Dhaka University and Chittagong University, and BRAC, as well as all teacher training colleges.

Contrasting Practice in Developed Counties

In most developed countries a person needs to graduate from an accredited teacher training provider and then is required to be registered as a teacher before starting their teaching career. In New Zealand, for example, graduation from an approved initial teacher education provider is required in order to become a primary, secondary or early childhood teacher. Provisional teacher registration follows and only after a period of teaching and fulfilling other required criteria can a teacher receive full registration. Teachers need to regularly renew their registration (Education Council, New Zealand).

Sahlberg (2010) relates Finland's position as a leading OECD country in educational achievement to its excellent teacher education system. Teaching there is a highly sought profession. Only the best and the brightest students get a chance to become a teacher. Teacher education programmes are designed so that a teacher can acquire sound theoretical and professional knowledge even before starting a teaching career. All school teachers in Finland are offered systematic professional development.

Some developing countries also put strong emphasis on teacher education. Malaysia, for example, mandated that all teachers in the secondary level need to have a bachelor's degree in education. Candidates for the pre-service teacher training programme undergo a rigorous selection process and only those who met the entry criteria and have strong desire to become a teacher are selected for the pre-service teacher education programme (Mokshein, Ahmad, & Vongalis-Macrow, 2009).

Wei, Darling-Hammond & Adamson (2010) stated that short term, workshop-based teacher training courses are unlikely to bring about changes in teachers' professional development and in students' outcomes, and they argued that it required long term and sustained investment of time and money into teachers' education to see positive outcomes in terms of teachers' professional development. Broad and Evan (2006) expressed a similar view, stating that effective professional development programmes are those that are sustained, on-going and in-depth, whereas short term, *one-shot* programmes are ineffective to bring about changes in teachers' practices.

Project Based Teachers' Training in Bangladesh

Since the adoption of the CLT approach several projects have been undertaken that targeted English teachers' training.

The English Language Teaching Improvement Project (ELTIP) started in 1997, funded jointly by the British government and the Bangladesh government. The British Council and National Curriculum and Textbook Board (NCTB) jointly managed the programme. The aim was to train teachers in communicative language teaching, enabling them to use the NCTB textbooks, *English for Today*, and enhancing their language skills and professional development (Farooqui, 2008). In the first phase 5,000 teachers were trained, four regional resource centres were established. 27 master trainers were trained in the United Kingdom at that time. When the funding for the project ended in 2002, the Bangladesh government decided to continue with the project and a second phase of the project run from 2002–2005, with a total of 17,328 teachers trained. A third phase of the project ran from 2005 to 2009. In the ELTIP project a total of 35,000 teachers were trained. Despite these numbers the succession of projects encountered considerable criticism by various researchers (Ali & Walker, 2014; Hamid, 2010;

Hamid & Baldauf, 2008; Sarker, 2004; Seargeant & Earling, 2011) who questioned the efficacy of the training and judged that ELTIP failed to make its intended impact on students' ability to use English communicatively.

The Teaching Quality Improvement project (TQI) is jointly funded by the Asian Development Bank (ADB) and Canadian International Development Agency (CIDA). One goal of the project is to provide training to teachers of various subjects. A second phase of the project spans from 2012 to 2018. Under this project teacher training courses were arranged in various centres including teacher training colleges. For the English teachers four-week continuing professional development courses were arranged, focusing mainly on communicative language teaching. Teachers were trained in principles of communicative language teaching and how to use the prescribed textbooks, *English for Today*, in the classroom.

According to its mission statement, the aim of English in Action (EIA) was to enable "25 million Bangladeshi adults and school children to improve their English language skills that will help them access better economic and social opportunities" (EIA, 2010). This project is funded jointly by the DFID of the British government and the Bangladesh government. A nine-year project was implemented with the help of various partners such as BMB Mott MacDonald, BBC Media Action, the Open University, UK and two national NGOs. EIA developed materials following the content of the NCTB textbooks. These include interactive audio lessons to use in class, posters and video clips. There are teachers' guides and audio and video resources for teachers' professional development.

Many English teachers have received training in using ICT in their teaching under the various projects. The initial target for supporting schools with technological equipment is that there would be at least one multimedia classroom in every school, in the second phase there would three to five multimedia classrooms in every school, and in the third phase computer and language labs would be established in every school (Government of the People's Republic of Bangladesh, 2012).

With the help of the Asian Development Bank the government is implementing a policy called *Digital Bangladesh* which is monitored from the Prime Minister's Office through a programme called *Access to Information A2I*. The government of Bangladesh is gradually providing equipment like computer projectors and internet modems to schools, arranging training for the teachers in the teacher training colleges, and developing a digital textbook which any one can download free. One of the key aims is to train teachers so that they become proficient in using technology in the class and improve their pedagogical knowledge of teaching using technology. There are initiatives to develop master trainers for ICT. Under the TQI project ICT is one of the key areas where teachers are given training to use multimedia in their classroom.

Criticisms in Published Research of Funded Projects

There are numerous criticisms of various aspects of the various externally funded projects, identifying waste of resources and lack of suitably qualified trainers. A strong criticism is that every project appears to want to start from scratch. EIA was started with similar goals to that of the previous ELTIP project and both projects were primarily funded by the same donor. However, instead of building on from the previous project, EIA started from the scratch, beginning with several baseline surveys. Hamid (2010) criticised the lack of co-ordination between these projects:

Moreover, each of the projects developed its own training infrastructure and resources which remain underused or unused at the end of the project. Thus, the cycle repeats itself as projects come and go in one of the poorest countries of the world (p. 304).

Further criticism is about the quality of trainers. In some instances the project, such as ELTIP phase I, starts with building training rooms in various locations and recruiting trainers for the duration of the projects. Once the project is over, the trainers become jobless. Sometimes teachers were employed to work as guest trainers in addition to their main job. Hunter (2009) commented that experienced teachers are not likely to leave their permanent fulltime jobs to work in short projects. He reported that fresh graduates are more likely to become trainers. He questioned the commitment of experienced teachers who became guest trainers in addition to their permanent jobs. Some projects do not have their own resources, so they are implementing thorough various training providers like teacher training colleges. As a result it is often noted that the regular programmes of those colleges are compromised.

Not only the means of training but also the content of the training has been questioned. Alam (2018) claims that the country is still struggling to see any apparent benefit from introduction of communicative language teaching and question the English attainment of students after the completion of higher secondary school. A Professor of Dhaka University further questioned the appropriateness of CLT in Bangladesh, citing the overwhelming number of students failing to get a pass mark in the undergraduate admission test (Habib & Chakraborty, 2014).

In Bangladesh there are commonly circulated reports of teachers who have been teaching English for a long time and had no chance to attend any training. On the other hand there are teachers who have attended the same training in different locations. Field observations in the current research identified instances of lack of monitoring and lack of coordination in implementing project-based training. For example, some participants were met at one of the teachers' training colleges where they were attending a three weeks continuous professional development course on communicative language teaching under the TQI project and the following month three of the same participants were encountered at another government funded training programme on communicative language teaching.

Loan and Aid Based English Teaching Development Projects – Who Benefits?

Loan and aid agencies can be identified as key stakeholders in English language teaching in Bangladesh. The majority of the ELT initiatives in Bangladesh are fully or partially funded either as a loan or as aid by various organisations and countries (Hamid, 2010; Earling, Hamid, & Seargeant, 2013).

In these projects consultants are employed from first world countries and particularly from the country involved in financing the initiative. In the two major English teaching project ELTIP and EIA the consultants were mainly from the United Kingdom. Bangladesh experts have also been involved but to a limited capacity, and the key decisions are made by the foreign consultant. There is an underlying presumption that Bangladesh lacks the expertise as well as funding to carry out the project. A question that arises: can

the use of short term foreign experts develop local Bangladeshi expertise unless there are clear plans for capacity development of local teams?

It may be argued that the foreign consultants add to their project portfolios and their research outputs and the capacity of Bangladeshi institutions remains underdeveloped. Thus when the term of a loan is finished Bangladesh has to look for another loan or further aid to continue the initiative. As an example, when the ELTIP finished, the EIA started with the same concept and both of them were primarily funded by the British government. When TQI-I finished Bangladesh had to seek another loan for the TQI-II project with a new international consultancy team. The pay differential between local and international consultants is a source of concern and criticism. A teacher trainer, interviewed in this study, commented:

The loan providers often categorise consultants as national consultant and international consultant for various development projects in Bangladesh. If a consultant is employed from outside the country, then he or she gets a large amount of money and other facilities regardless of their expertise. On the other hand a national consultant does not get much money, even if he or she has much experience and expertise.

There are doubtless market force reasons for the difference in payments. However, the complaint indicates that the expertise of the foreign consultants is not always visible to the local teacher trainers and that the loan money seems to be pouring back to developed countries.

A participant who works closely with educational development projects in Bangladesh, commented that often loans were granted with a condition that training needed to be hosted in the intuitions of the country providing the loan, again raising the question of whose interests were best served by the loan.

There is international research that suggests that aid for improving education in developing countries often acts against country's development. Heyneman (2006) argued that educational aid for developing countries, instead of strengthening their local institutions limited their capacity. Shamim (2011) found that project-based English language training schemes are not often sustainable. She cited the example of a donor funded English language teaching project in Pakistan and stated that although the success of the development project was reported, it was not sustained for long. The project built a centre at a university and once the project was over the centre became ineffective. She attributed two reasons for that ineffectiveness. First the project was undertaken outside the ministry's regular financial procedures and once the project funding was over there was no means to continue. The second reason was that since it was an external project it did not have adequate infrastructure.

Heyneman's claim and Shamim's observations are to some extent reflected in the donor or loan based educational development projects in Bangladesh. Donor or loan based educational projects sometimes build their own training teams and sometimes turn to various teacher training colleges. In interviews several teacher trainers highlighted how project-based training projects hamper teacher training colleges' regular programmes. As some of these projects conducted as part of the Bangladesh government's projects, teacher training colleges as government institutions are obliged to run the training sessions. They also provide opportunity for teacher trainers to earn extra money on top

of their regular salary. Thus, trainers in many cases are eager to teach in those courses. One experienced teacher trainer commented:

Many of the teachers in the teachers' training colleges somehow just manage their regular teaching for B.ED, M.Ed or honours course and sometimes ask other colleagues to cover if needed. Then they involve themselves in short training courses as from these trainings they get extra money – depending on the number of classes they take. Some teachers think that their regular salary is their right and they will get it anyway at the end of the month and they work hard for the short courses for extra money.

She added:

When June (the last month of the financial year) approaches various organisations come to the teacher training colleges and request them to run their trainings as they want to spend their allocated budget. Teacher training colleges often run TQI, SEQAEP, LSB, Disaster Management's courses simultaneously.

Due to the shortage of teacher trainers sometimes it is seen that one teacher trainer is the master trainer of several courses. However, these projects want teacher training colleges to run their courses as ability to spend the allocated money is considered as the mark of a successful project and inability to spend money is considered as ineffective project management.

Teacher training colleges were established to provide degrees and professional development courses for teachers. It may be argued that these institutions should be the providers of pre-service and in-service teachers' education as well and that they can rightfully be partners to international projects. However, the current situation does not have enough infrastructural monitoring processes to assure quality.

Participants' Perceived Benefits of Short Training Courses

Despite various criticisms, many participants reported a positive effect of short course training. They spoke appreciatively of the opportunity to learn and try out new teaching strategies and of the benefits of developing collaborative relationships with colleagues.

For example, one participant stated:

I have learned about communicative language teaching in the training. For example, before attending the training I had no idea what was group work, pair work, mind mapping, pre-reading and post-reading activities and what is the importance of different materials in teaching. Since I attended the training I feel the urgency of learning.

Another teacher talked about the benefit of simulation classes:

The most beneficial thing is the simulation classes where we get the chance to demonstrate in front of other teachers what we have learned and how to do different kinds of interactive activities; how to engage students in the lesson and how to use the textbook "English for Today".

A headmaster and English teacher described his experience after attending two trainings, one in communicative language training and another one related to ICT:

I made changes in my teaching after attending in the training. Now I like to make my class friendly. After the trainings I feel that it is very essential for teachers to use interactive activities in the class.

Another teacher also described his training positively:

It's the first time I have got a chance to attend in any training and it opens a lot of avenues for me. It offers something different from what I knew about teaching.

The above comments indicate that participants were introduced to some new concepts and teaching strategies in the training. There are teachers in the secondary schools in Bangladesh who teach English but have very little knowledge about the communicative approach to language teaching and who are not familiar with other classroom activities than giving lectures (Choudhury, 2010). For them these courses seem to provide an introduction to communicative language teaching which they may explore further.

Perceived Problems Associated with Short Training Courses

Problems in the short training courses were also identified. One of the observed problems was that some course attendees lacked sufficient English language competency to participate in the course. Selina was one of the participating teachers of a short training program arranged in a teachers' training college. Selina was attentive but very quiet in the training session. In that session there were teachers who had graduated from various public universities of Bangladesh and were teaching at prestigious schools in the city. Selina was a teacher of a village school, and she explained that she was attending because someone from her school had to attend he government provided training. She was not an English teacher but she taught some English at her school. Throughout the training session she sat and listened without asking any question and without participation in the discussion. The trainer sometimes asked her opinion, but as the training was conducted in English it seemed she did not understand what the trainer was asking. She would remain silent and the trainer seemed to realise that he could not spent too much time with her. He was unwilling to use participants' first language as one of the key messages of the training programme was to encourage participants to use English only in class. Selina was not willing to demonstrate a simulation class. As attendance is the only requirement, there is no pass or fail in courses such as these. Therefore the question arises about how much benefit teachers like Selina get from attending this kind of training course. It seems that there is need for very different courses for teachers who have not yet developed strong English language competency.

Training courses are largely centralised in city sites. Teachers who come far from the city and need to find accommodation struggle to attend. There is sometimes opportunity to stay in a college hostel, but there are few such facilities. One female participant described how hard it was for her to find accommodation to attend one month training in the city away from her village where she worked:

It is very difficult to find temporary accommodation in the city in Bangladesh and especially for woman it is almost impossible to find a suitable accommodation. Besides for someone like me who is not familiar with the city it is very difficult to live in the crowded city life.

Another teacher, who asked for strict anonymity, reported his conversation with colleagues at his course and highlighted a lack of interest in changing practice:

My colleague commented: 'I have no interest in the training. I have to come as it was mandatory and the school authority and administration asked me to go for the training. I am attending and getting training allowances. After teaching so many years now I have nothing to learn. I cannot change anything in my teaching'.

Jitendranath Roy, an experienced English teacher and an examiner of the S.S.C examination, also expressed his dissatisfaction with the existing training courses in some institutions:

There are some institutions and some private universities that offer teacher training like the B.Ed and the quality of these training courses is very poor. In my school I have seen a teacher who has completed B.Ed from such an institution and it seems to me that he has learned nothing. He was hardly attending any classes – maybe once in a week or even less – and after a while he got a degree. In my opinion the government should not recognise that kind of qualification.

Moreover, participants highlighted that *load shedding*, cut-off of the electricity supply, is very common throughout Bangladesh and in the village areas the problem is especially severe. When there is a power cut during the class the use of ICT becomes impractical as there is no backup to continue the class.

Lack of security for ICT equipment and absence of technology support are other concerns in many schools. Teachers are consequently afraid of using ICT equipment in their teaching: they fear that if something goes wrong they may be responsible for the repair.

Participants also stated that the duration of classes is not suitable for use of multi-media. In many schools the equipment is set up in one room. Time is wasted from the 45 minute class in moving either students or equipment and then packing up again. Participants also complained that although the government had created a pyramid system whereby one teacher was trained in ICT from each school and they were expected to arrange training in the school for the other teachers, many teachers did not want to disseminate what they had learnt in the training.

Emerging Issues

This project gave detailed illustration of claims made in the literature that English teachers come into school with inadequate skills in using English and in teaching it (Chowdhury & Le Ha, 2008; Hamid, 2010; Hasan, 2013; Islam, 2015). Pre-service training does not occur and in-service training is inadequate. Key features of the shortcomings are summarised in the figure below.

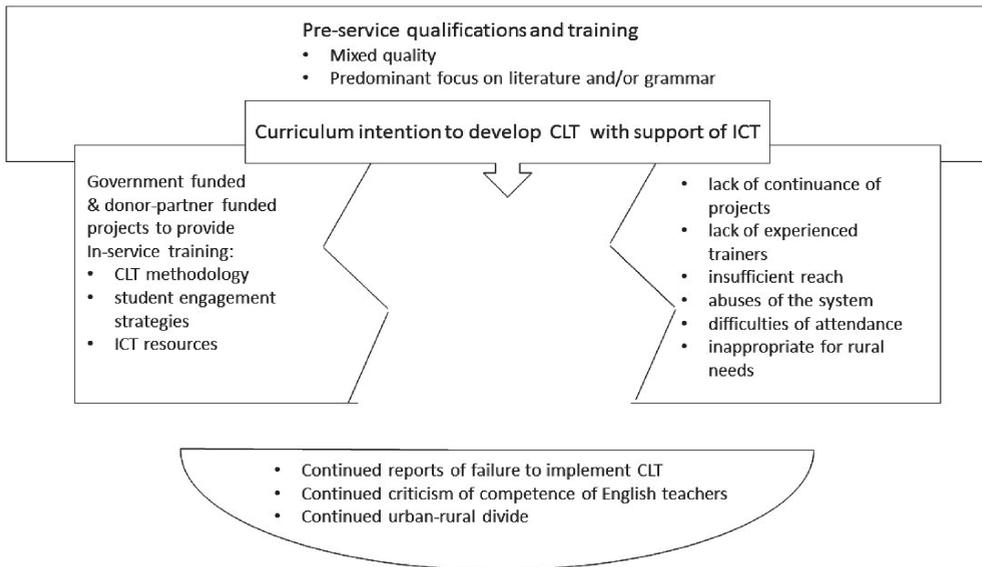


Figure 1. Intentions and limitations of training courses

Teachers enter the profession after the completion of generic qualifications that are not designed to train teachers. The credibility of teacher recruitment through a public service examination is questionable. Processes of selection need to be developed that allow an assessment of character motivation and professional aptitude.

As detailed above, short courses for improving English teachers' effectiveness have been developed, with course design coming from a succession of international institutions and funding provided by international funding agencies as well as the government of Bangladesh. These courses predominantly focus on pedagogical approaches that would enable teachers to develop a more student-centred classroom environment and to use the government textbook, *English for Today*, in ways that are compatible with a communicative approach to language teaching. A further aim of many courses is to introduce teachers to the possibilities of using ICT resources to support their teaching of English.

Participants in this study identified a number of shortcomings in the existing systems of short course professional training. Two overarching problems were the absence of sustainability in the funded projects and the lack of experienced and language proficient trainers. They also pointed out that, despite stated funding and policy aims, the projects have not yet had the capacity to involve a majority of English teachers. Participants reported their perception that there were abuses of the system in that many part-time trainers were insufficiently committed to the project and that some trainees came only because they were forced by their management committees or because they wanted to take the monetary gain of the training allowance. They further pointed out that because courses were centrally located, rural teachers, especially women, experienced difficulty in finding accommodation and leaving their families.

There were many concerns about the appropriateness of the training courses for the needs of rural teachers and their schools. Many rural teachers do not have enough English language competence to participate in, or even understand, the courses. Further, those who do understand are not provided with strategies to change the culture of their

communities and schools, and do not have the resources to utilise the ICT training they have been given. Even city teachers reported that they found it hard to change their practice in view of the dominance of the examination system and the consequent reliance on guide books.

Despite successive training projects, popular opinion and published research (Alam, 2018; Ali & Walker, 2014; Rahman & Pandian, 2018; Rahman, Pandian, & Kaur, 2018) suggest that a CLT approach has not been implemented to any significant extent in Bangladesh and that too many teachers of English lack basic language and pedagogical competencies. The participants' comments also point to an enduring urban-rural divide. It is questionable whether short-term project-based teacher training can bring the desired changes. This confirms findings from earlier Bangladesh research (Hamid, 2010). Sound pre-service programmes are needed to ensure teachers are equipped with sound knowledge before they are appointed to schools.

The survey results, further detailed in Al Amin (2017), also indicate that, while many of the participating teachers largely understood and appreciated what they learned with their courses, they did not implement their understandings into their practice.

While many of the participants interviewed perceived some benefits in the short training programmes, it is highly questionable whether there is enough time and opportunity in these courses for teachers who are not at all familiar with the communicative language teaching to learn different types of communicative classroom activities and use them successfully in their classes. Examinations play a decisive role in determining teaching and learning in Bangladesh and teachers focus on the high stake examinations which reward rote learning (Al Amin & Greenwood, 2018). So there is need for training that addresses how teachers can help students develop their communicative skills and at the same time prepare for the examination.

It might be asked whether better results could be obtained if there are opportunities for teachers in the field to collaborate with other teachers. For example, teachers and students from the rural schools could go to the prestigious city schools to see how the teachers in those schools teach. Similarly teachers of the city schools could come to the rural schools and teach there for a short period of time so that rural teachers can learn from them. One of the aims of the British Council's *Connecting Classrooms* project, in which some schools in Bangladesh are taking part, is to create collaboration between teachers and students from different countries and, following a similar model, collaboration between urban and rural schools might bring positive results in teachers' professional development. Research from other developing countries has explored pathways for effective training of teachers who did not receive pre-service training. For example, Alkhawaldah (2018) in a Jordanian study argues that school-based training allows teachers to collaborative learn from each other. A Bangladesh study (Alam, 2016) had similar findings.

Even more fundamentally, rather than relying on project-based and foreign consultant led short term training courses, Bangladesh needs to strengthen its own teacher training capacity through local institutions. Once funding has finished, projects end. They are not sustainable. Bangladesh needs to develop its own quality assured initial teacher training and its own system of continuing professional development. Long term policy, implementation, planning, and development of expert trainers are essential elements if Bangladesh is to see any real progression in education generally, and in English teaching in particular.

There are other challenges in education: teacher-student ratios, teaching loads, salary levels, resources and infrastructures. However, it is essential to ensure that teachers are enabled to become motivated to develop themselves professionally. At present there is no provision for monitoring and mentoring teachers' professional development, and high stake examination results are the only yardstick by which teachers, students and schools are judged.

Conclusion

Sustainable Development Goal 4 calls for its signatory nations to *ensure* inclusive and equitable *quality* education. Policy decisions and curriculum can affirm commitment to the goal and lay the foundations for education change, but in themselves they cannot provide the teaching. Teachers are the ones who have the potential power to translate policy and curriculum into opportunities for learning. In Bangladesh, in the case of English language teaching, there is clearly articulated policy and a free textbook supported curriculum. However, it is the shortage of quality teachers that has been repeatedly critiqued. The development of quality teachers requires a sound system of teacher preparation and continuing teacher development. This article has identified that training currently takes place through a mix and match of courses of varying length, provided at widely varying career stages, by a wide range of national and visiting consultant providers, with many alleged abuses and failing in delivery. It has also identified that while some participants feel stimulated by participating in short course training, many find it too difficult to translate their new insights into practice. In addition there are many teachers, especially in rural schools, who have had no access to training. The present model of teacher training is arguably uncondusive to a system of sustainable teacher development. If the targets nominated in Sustainable Development Goal 4 are to be assessed by any means beyond the statistical reporting of enrolments, then quality systems of preservice education and continuing professional development of teachers is urgently needed. This article has focused on the training of English teachers. However, although there are specific problems relating to the teaching of English, the problems of teacher selection, lack of pre-service training, and teaching that focuses on rote-based examination preparation apply across the curriculum. Quality systems of teacher development are needed for all.

Nevertheless, it is important to remain mindful that, as a developing country, Bangladesh is in a historically-constructed disadvantaged position. While it needs partnerships to develop its education system, it does not need partnerships that do not develop sustainable initiatives and increase its own capacity for sustainable development. The SDG4 agenda provides a useful benchmark for the goals Bangladesh aspires to: it does not provide a blueprint of how to achieve them. This article argues that the government and educational agencies of Bangladesh need to be more critically evaluative of sponsored projects for teacher development and to develop its own rigorous and sustainable systems.

Declaration

This article is based on the first author's PhD research. The first author wrote the first draft and the second author provided critical feedback, comments and suggestions for further improvement.

Note:

(1) Islamic school

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Towards a Sustainable Curriculum for ESAP Teacher Training Program: A Profile of ESAP Content Specialists' vs. Language Instructors' Needs

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Abstract

The first and most crucial step towards developing a sustainable curriculum for instructors teaching English for Specific Academic Purposes (ESAP) is a needs analysis. Therefore, the main aim of conducting this study was to investigate the in-service needs of language instructors and content specialists teaching ESAP and to spot the differences between the needs of these two groups in order to provide them with systematic treatments in ESAP teacher training programs. This mixed method study was designed on a qualitative-quantitative survey basis using a questionnaire, a semi-structured interview, and an observation checklist. The analysis of the data collected from 50 content specialists and 50 language instructors completing the questionnaires reveals that there is a significant difference between the in-service needs of these two groups, that is, language instructors desire more to be trained in an in-service ESAP teaching training program in terms of professional, procedural and personal needs. Furthermore, the results of the data obtained from the semi-structured interview and the observation of 20 of the above-mentioned instructors (i.e., 10 content specialists and 10 language instructors) indicate that language instructors have more difficulty selecting suitable materials, suffer more from low income, attitudinal difficulties and backwash effect compared to their counterparts teaching ESAP courses. It can be inferred that the results of the present study can sufficiently help the researchers to embark on an in-service teacher training program both for ESAP content specialists and language instructors based on their specific needs in the ESAP context.

Keywords: in-service teacher training program, content specialists, language instructors, instructors' needs, ESAP courses.

Introduction

Today in the developing world of science almost all university students need to have a supreme command of English in order to be able to have an unrestricted access to a wider variety of resources in their subject-specific field of study; owing to this fact, ESP courses in general and EAP courses in particular gain crucial importance. Robinson (1991) points out that ESP is an enterprise which has its root in three major disciplines

including language, pedagogy and the students' special field of study. She notes that one of the crucial implications that arises from the term "English for specific purposes" is that it is context-specific; in other words, it is sensitive to particularities of the learning situations in which particular learners work toward particular set of goals. Due to this fact, a universal definition of ESP is likely to be unattainable; however, she introduces needs analysis as one of the serious concerns of ESP and includes in her definition of the term ESP two major criteria: *a) goal-oriented*: According to this criteria, the reason that the students study English is not their interest in it, rather, this is the need of English for study or work purposes which is considered as a driving force behind them, and *b) needs analysis*: She notes that the ESP course evolves from needs analysis which 'aims to specify as closely as possible what exactly it is that students have to do through the medium of English' (Robinson, 1991, p. 3). Along with these criteria, she enumerates some other characteristics of the ESP course which are not considered as permanent. These characteristics are mentioned as follows:

- 1) In ESP course the specification and realization of the objectives are accommodated into the time available during the program.
- 2) The ESP courses are usually addressed to the adult learners rather than children.
- 3) The ESP courses are generally presented to the students majoring in a common field of study.
- 4) In ESP courses, the appropriate activities determined through *needs analysis* are prioritized over the inclusion of the specialist language and content.

According to Richards and Schmidt (2002), English for Specific Academic Purposes (ESAP) refers to the language course in which a close attention is devoted to the specific needs that the students have in order to undertake study or work in a particular discipline through the medium of English. ESAP is different from EGP (English for General Purposes) in that the latter aims at teaching of general language proficiency.

Therefore, teaching English for Specific Purposes (ESP) has been considered as a separated stream from general English language teaching considering the fact that some scholars such as Dudley-Evans and St. John (1998) consider ESP teacher as a "practitioner" who must adopt several vital roles namely, teacher, course designer, materials provider, collaborator, researcher and evaluator of courses.

As it was mentioned above, ESP courses demand their own methodology and as a result they preferably require instructors who are trained for the sake of teaching these courses; however, this is one of the most controversial issues in the ESP/EAP literature because contrary to the ones saying that ESP methodology is basically different from EGP, there are some scholars saying that there is nothing specific to ESP methodology. Among these scholars are Hutchinson and Waters (1987), who say that ESP does not involve a particular kind of language or a particular kind of methodology, rather, it is an approach based on which all the decisions will be made by considering the learners' needs. The proponents of these scholars who outnumber the proponents of the former group just focus on the learners' need and do not pay specific attention to the teachers' needs, the materials designers' needs, the institutional needs, and the needs of other groups who involve in the process of ESP teaching and learning.

The term 'needs analysis' was first used by Michael West in India in 1920s when he endeavored to understand why and how learners learn English. He found that the purpose of learning English was to read and the route to learning was reading. West was teaching

the students who were referred to as TENOR (Teaching English for No Obvious Reason) by Abbot (1981, p. 12). As West mentions the term disappeared until around 1970s and then reappeared for the main reasons of the work of Council of Europe and the early work in ESP (e.g. the ones done by LTDU, 1970; Stuart and Lee, 1972/1985). The Council of Europe categorized personnel and then classified their needs into four categories of understanding, speaking, reading and writing; however, LTDU (1970) and Stuart and Lee (1972/1985) made a more detailed analysis especially on business language and classified the needs of the personnel based on the situations and tasks required by them. Basturkmen (2006) defines needs analysis as the process of identifying the language needs of different parties. In addition, Brown (1995) completes this definition saying that needs analysis pertains to the systematic collection of subjective and objective information needed for the purpose of justifying the goals of a curriculum. Graves (2009) contends that in order to plan an educational program some question such as what will be taught, who will be taught, how it will be taught and how what is learned will be evaluated should be answered. He notes that needs analysis is a great help to plan a robust and sustainable curriculum. According to Besong and Holland (2015), the concept of sustainability is a complicated concept for which there is no single unified definition. They (p.7) contend that “sustainability is conceived as the ability to maintain something for a long time at a specific rate or level”.

Two perspectives are involved in needs analysis for designing a sustainable curriculum for the main aim of teacher education: a starting perspective and an ending perspective. The main aim of the former perspective is to gather information about the learners experiencing the curriculum (e.g. who they are, what they know and their experience). Taking into consideration the context of second language teaching education, the learners may be teachers who are referred to as teacher-learner. In the ending perspective some information about what teacher-learners should know and should be able to do as a result of educational experience will be obtained. The information gathered in this phase are considered as the goals of second language teacher education.

ESP instructors do require a specialized knowledge about the trends in the ESP instruction that can be obtained through both in-service programs and practical experience; however, uniform beliefs, techniques, methods and classroom activities have not yet been devised in the field especially in the Iranian context. Robinson (1991) notes that the variations in ESP courses and the institutions offering them is to the extent that makes it impossible to define a unitary model for ESP teachers. In a similar line, Mattheoudakis (2006) considers the factors relating to the cultural and professional context as well as the amount of theoretical and practical courses offered by the teacher training programs as the issues determining the structure of these programs. Jackson (1998) mentions that besides the regular tasks of a language teacher, an ESP practitioner has to manage some extra issues such as administrative, personnel, cross-cultural, interdisciplinary, curricular and pedagogic issues which may be considered as unfamiliar for ESOL teachers. Jackson (1998) continues saying that more is needed to be done in 3 major areas: a) the development and distribution of ESP case materials, b) teaching with ESP cases and c) research.

As it was mentioned above, ESP courses demand their own methodology and as a result they preferably require instructors who are trained for the sake of teaching these courses; however, today the problem lies in the dearth of research in the field that

investigate different aspects of pre-service and in-service teacher training programs in the ESP context in our country. To this end, the present study aims at filling this gap by identification of the ESP instructors' needs and wants in order to offer a comprehensive package which demonstrate the standard directions towards teaching ESP.

This was done by comparing the needs of two parties teaching ESAP courses namely the language instructors (i.e. instructors majoring in English language teaching) and content specialists (i.e. instructors majoring in a specific field of study and teaching the ESP of that field). Furthermore, a comprehensive model of language teachers' knowledge base was adopted for an in-depth analysis of the teachers' needs. Different classifications of language teachers' knowledge base including theoretical knowledge, practical knowledge, pedagogical knowledge, subject matter knowledge, contextual knowledge, knowledge of learning, knowledge of learners and their characteristics, knowledge of English, teaching skills, communication skills, decision making, personal reasoning and etc. have been proposed by various scholars (Andrews, 1999; Clandinin & Connelly, 1987; Elbaz, 1983; Freeman & Johnson, 1998; Han, 2011; Richards, 1998; Shulman, 1986a, 1987; Tsui, 2003; Zhu, 2013); however, Kumaravadivelu (2012) group all of these insights under three categories namely (a) professional knowledge; (b) procedural knowledge; and (c) personal knowledge.

Professional knowledge embraces the theories of language learning and teaching which are mainly derived from experts and professional journals and books. Procedural knowledge pertains to teachers' expertise in managing the activities of learning environment in general and the classroom in particular (e.g. grouping learners, planning lessons, designing tasks and activities, handling classroom interaction, etc.). Finally, teachers' beliefs formed after years of experience which involve teachers' own social, cultural, and institutional values, norms, and expectations can be grouped into the third category of knowledge base which is called personal knowledge.

Methodology

Design

In order to ensure that a more vivid and comprehensive picture of the ESAP teachers' needs is presented via this study and to reduce method-related bias, the researcher endeavored to report the findings that are based on the triangulation sources of data. Therefore, the results of the present structured interview, a questionnaire and an observation have been exploited as research instruments.

Participants

A total number of 100 ESAP instructors comprising 50 content specialists and 50 language instructors took part in this study. The participants are those who complied to complete the questionnaire among the ones to whom the questionnaire was sent. The instructors were teaching ESAP at universities in Isfahan, Yazd, Shiraz, Tehran, Tabriz, Urmia, Mashhad and Kerman. In addition, they were teaching ESAP to the students majoring in technical and medical fields of study namely the students of urban planning, computer engineering, entomology, medicine, dentistry, agricultural engineering, nursing,

architecture, accounting, electrical engineering and biology. Furthermore, 20 of the mentioned instructors (10 content specialists and 10 language instructors) teaching in Isfahan, the hometown of the researcher, were selected for the purpose of observation and semi-structured interview.

Instrument

Questionnaire for ESAP Instructors

For the main purpose of identifying the general and specific needs of ESAP instructors, the researcher consulted different ESAP teacher training programs and workshops as well as some programs such as CELTA (Certificate in Teaching English to Speakers of Other Languages) and DELTA (Diploma in Teaching English to Speakers of Other Languages) which are designed for training teachers teaching general English courses.

Subsequently, a questionnaire for determining the most central needs of the ESAP teachers was developed based on the above-mentioned programs by the researcher. The questionnaire demonstrated an adequate internal consistency reliability of 0.75 based on the Cronbach's alpha coefficient measured for it. This is because according to DeVellis (2003, as cited in Pallant, 2007, p. 95), the ideal value for the Cronbach's alpha coefficient should be above 0.70.

The distributed questionnaire for ESAP instructor (Appendix A) contains three sections: Section A gathers some background information from participants, section B contains 30 items which were designed based on a 5-point likert scale ranging from "strongly agree" to "strongly disagree" and section C allows the participants to provide the items related to teacher's needs which they believe were not included in the questionnaire. It should be noted here that the items in part B of the questionnaire are organized based on the Kumaravadivelu's (2012) classification of language teachers' knowledge base into three different categories of professional knowledge, procedural knowledge and personal knowledge. Besides, in order to ensure the validity of the measurement, the questionnaire was shown to 6 experts in the field and their comments were elicited and considered for revising it.

Observation

Each instructor (10 content specialists and 10 language instructors) was observed for 3 sessions in order to identify the major difficulties they experience while teaching to ESP students and to determine the topics for an effective teacher training course.

The navigational instrument applied in this phase of the study was the teacher evaluation rubrics devised by Marshall (2011). The rubrics embrace six domains comprising all aspects of a teacher's job performance namely: A) planning and preparation for learning, B) classroom management, C) delivery of instruction, D) monitoring, assessment and follow-up, E) family and community outreach and F) professional responsibilities. Each of the mentioned rubrics has ten subsections and they use a four level rating scale carrying the labels of: 4) highly effective, 3) effective, 2) improvement necessary and 1) does not meet standards; however, it should be noted here that sections E and F and five subsections in each rubric were considered as irrelevant to the present research and were subsequently eliminated after the implementation of pilot study.

Table 1
Teacher Evaluation Rubrics (adapted from Marshall, 2011)

A. Planning and Preparation for Learning	B. Classroom Management	C. Delivery of Instruction	D. Monitoring, Assessment and Follow-up
a. Knowledge (familiarity with subject matter and how students learn)	a. Relationships (being respectful toward students)	a. Expectations (convincing the students that they can master the material)	a. Diagnosis (administering a diagnostic test at the beginning in order to fine-tune the instruction to the knowledge of the students)
b. Standards (having a plan which is compatible with high standards and external assessments)	b. Responsibility (developing students' self-discipline and decreasing their dependency on teacher)	b. Goal (providing a clear explanation about the main objectives of the lesson at the beginning of the instruction)	b. On-the-spot (checking the students understanding with effective methods)
c. Assessment (monitoring the students learning via diagnostic and summative assessments)	c. Efficiency (using every minute of instructional time to maximize academic learning)	c. Clarity (presenting the materials clearly by using suitable examples and appropriate language)	c. Interims (analyzing the tests and using the obtained data to adjust teaching)
d. Engagement (planning lessons which lead to the students' motivation and active engagement)	d. Prevention (preventing discipline problems instantly)	d. Repertoire (applying a range of effective teaching strategies and materials)	d. Analysis (analyzing the assessment data with colleagues to draw action conclusions)
e. Materials (exploiting effective and high quality materials)	e. Incentives (using incentives to encourage student cooperation)	e. Engagement (involving all the students in focused work and avoiding to be a passive lecturer)	e. Reflection (thinking about the effectiveness of the instruction and working toward its improvement)

Interview

A semi-structured interview was carried out with the content instructors as well as the language instructors concerning the problems they usually confront in their ESAP classes. Furthermore, some questions were addressed to the students in order to understand their ideas regarding their instructors' blind spots. For the purpose of interview, a set of questions was prepared concerning the objectives and applicability of the materials that were used, the lesson plan, classroom interaction, the methodology applied, the role of mother tongue in ESAP classes and the students' needs and expectations.

Results

Content Instructors' and Language Instructors' Preferred Areas of Knowledge

The main purpose of this section is to explore the content instructors' and language instructors' preferences concerning the three areas of professional, procedural and personal knowledge in order to develop the base for the initial framework of in-service ESAP

teaching training course; therefore, to facilitate the interpretation of the results, the nominal categories 'strongly agree' and 'agree' were reduced to 'agree' and 'strongly disagree' and 'disagree' were reduced to 'disagree'. Subsequently, In order to communicate the results and to answer the research question, the obtained data were processed and subjected to the statistical analysis using the SPSS software, that is, the percentage is obtained for the answers to each and every question included in the distributed questionnaire. Appendix A contains the questionnaire used in this study.

Table 2
Content Instructors' Preferences

	Agree	No idea	Disagree
Identifying and analyzing learners' needs and expectations	42	0	58
Identifying and analyzing learner characteristics	54	0	46
Designing ESAP tests	62	0	38
Establishing rapport	32	0	68
Professional websites, forums, and clubs	26	32	42
Learner's different styles of learning	16	16	68
Different genres	0	32	68
Teacher roles	16	0	84
Disciplinary/professional culture	12	0	88
Theories of ESP learning	6	0	44
Professional knowledge			
How to teach reading	44	0	56
How to teach listening	34	0	66
How to teach speaking	28	10	62
How to teach writing	46	0	54
How to teach grammar	46	0	54
How to teach technical vocabulary	60	0	40
How to teach semi-technical vocabulary	80	0	20
How to teach general vocabulary	56	0	44
How to integrate language skills	72	0	28
lesson planning	50	0	50
Materials selection, adaptation and evaluation	46	0	54
Motivating learners	20	22	58
learner autonomy	16	18	66
Syllabus/course design	24	12	64
Increasing student talk time	12	24	64
Increasing L2 use in classroom and reducing L1 use and translation	34	20	46
Promoting classroom interaction	34	0	66
Dealing with Large classes	30	0	70
Procedural knowledge			
Adjusting personal beliefs to contextual realities	54	0	46
Critical reflection on personal beliefs about teaching and learning	54	0	46
Personal knowledge			

Based on the results of the above table, more than 50% of the respondents showed their agreement for the 9 mentioned items in table 3. Therefore, these items can be considered as the priorities of the content instructors in an in-service ESAP teaching training course.

Table 3
Items that Can Be Included in an In-service ESAP Teacher Training Program Targeted to Content Specialists

Item	Agreement (%)	Rank
1. How to teach semi-technical vocabulary	80	1
2. How to integrate language skills	72	2
3. How to teach technical vocabulary	62	3
4. Designing ESAP tests	60	4
5. How to teach general vocabulary	56	5
6. Identifying and analyzing learner characteristics	54	6
7. Adjusting personal beliefs to contextual realities	54	6
8. Critical reflection on personal beliefs about teaching and learning	54	6
9. Lesson planning	50	7

Table 4
Language Instructors' Preferences

	Agree	No idea	Disagree
Identifying and analyzing learners' needs and expectations	100	0	0
Identifying and analyzing learner characteristics	82	18	0
Designing ESAP tests	94	0	6
Establishing rapport	64	36	0
Professional websites, forums, and clubs	76	24	0
Learner's different styles of learning	88	12	0
Different genres	72	16	12
Teacher roles	92	8	0
Disciplinary/professional culture	78	16	6
Theories of ESP learning	82	4	14
Professional knowledge			
How to teach reading	78	10	12
How to teach listening	70	12	18
How to teach speaking	70	18	12
How to teach writing	76	12	12
How to teach grammar	88	0	12
How to teach technical vocabulary	70	12	18
How to teach semi-technical vocabulary	76	12	12
How to teach general vocabulary	76	12	12
How to integrate language skills	70	14	16
Lesson planning	94	6	0
Materials selection, adaptation and evaluation	82	12	6
Motivating learners	92	0	8

Sequel to Table 4 see on the next page.

Sequel to Table 4.

Learner autonomy	70	18	12
Syllabus/course design	74	6	20
Increasing student talk time	94	6	0
Increasing L2 use in classroom and reducing L1 use and translation	64	12	24
Promoting classroom interaction	92	0	8
Dealing with Large classes	64	16	20
Procedural knowledge			
Adjusting personal beliefs to contextual realities	68	18	14
Critical reflection on personal beliefs about teaching and learning	70	22	8
Personal knowledge			

Table 4 indicates that the items that can be placed at top of the list as the interests of language instructors are as follows:

Table 5

Items that Can Be Included in an In-service ESAP Teacher Training Program Targeted to Language Instructors

Item	Agreement (%)	Rank
1. Identifying and analyzing learners' needs and expectations	100	1
2. Designing ESAP tests	94	2
3. Increasing student talk time	94	2
4. Lesson Planning	94	2
5. Motivating learners	92	3
6. Teacher roles	92	3
7. Promoting classroom interaction	92	3
8. Learners' different styles of learning	88	4
9. How to teach grammar	88	4
10. Identifying and analyzing learner characteristics	82	5
11. Materials selection, adaptation and evaluation	82	5

Content Instructors' Needs Versus Language Instructors' Needs

In order to address the question of whether there was any difference in the educational needs of EFL teachers and field specialist ESP teachers with regard to professional area of teacher's knowledge, an independent-samples t-test was conducted. There was a significant difference in responses provided by content instructors ($M=29.90$, $SD=11.62$) and language instructors ($M=41.32$, $SD=4.36$); $t(-6.50)=62.56$, $p<0.005$ (two-tailed). Calculating the magnitude of the differences in the means (the effect size) revealed a large effect ($\eta^2 = 0.30$). Table 6 presents the findings of the comparison between the two groups regarding their professional needs.

Table 6

Independent-samples t-test Comparing Two Groups Regarding their Professional Needs

Group	N	M	SD	Df	t	P
Content instructors	50	29.90	11.62			
Language instructors	50	41.32	4.36	62.56	-6.50	<0.005

In addition, another independent-samples t-test was conducted in order to compare the two groups of ESAP teachers in terms of their procedural needs. As the results in table 2 indicate, there was a significant difference in the scores of content instructors ($M=50.92$, $SD=16.14$) and language instructors ($M=76.32$, $SD=13.72$); $t(-8.47)=95.52$, $p<0.005$ (two-tailed). The magnitude of the differences in the means showed a large effect (eta squared = 0.42).

Table 7

Independent-samples t-test Comparing Two Groups Regarding their Procedural Needs

Group	N	M	SD	Df	t	P
Content instructors	50	50.92	16.14			
Language instructors	50	76.32	13.72	95.52	-8.47	<0.005

Lastly, in order to discover the difference between content instructors and language instructors in terms of their personal knowledge, an independent-samples t-test was used. The results presented in table 8 indicate a significant difference between content instructors ($M=2.32$, $SD=1.23$) and language instructors ($M=4.22$, $SD=0.54$); $t(-9.94)=67.38$, $p<0.005$ (two-tailed). The magnitude of the differences in the means showed a large effect (eta squared = 0.50).

Table 8

Independent-samples t-test Comparing Two Groups Regarding their Personal Knowledge Needs

Group	N	M	SD	Df	t	P
Content instructors	50	2.32	1.23			
Language instructors	50	4.22	0.54	67.38	-9.94	<0.005

Summary of the Results of the Observation and the Semi-structured Interview

In order to spot the difficulties language instructors as well as content specialists experience while teaching English, to draw a comparison between these instructors and to outline a meticulous teacher training program for them, each instructor was observed for 3 sessions before the main phase of the study. The results of the observations are as follow:

Deficiency and Weakness in ESAP Materials

In 1985, SAMT (the official Iranian center for materials development) took over the responsibility of developing English language materials for students studying in different areas of specialization. The ESAP books published by SAMT usually include several lessons (ranging from 16 to 20) which cannot be covered in the limited time

available in one semester. Each lesson starts with a list of vocabulary followed by a text adopted from authentic materials with some adaptations and modifications. The texts are often accompanied by some comprehension questions and a paragraph for translation with serious neglect of speaking, writing, listening and the grammatical structures frequent in that specialized field of study.

The above-mentioned facts demonstrate that the general format of the books designed by SAMT induces translation as the principle method used in ESAP classes and subsequently does not leave room for other communicative skills necessary for ESAP students. Nazarova (1996) points out that in the current ESP programs, the focus is on providing specialized vocabulary and translating numerous texts. These inefficient methodologies along with the materials most of which are designed based on the traditional environmentalist approach are incompatible with the needs of the students and therefore will result in their poor motivation and participation during the course. Jordan (1997) mentions that materials can be effective when they are designed based on the learners' needs since when the learners find a relationship between their needs/wants and the subject-matter of the materials, they become strongly motivated.

Limited Knowledge of Materials Selection

The results of the observations in the present research demonstrate that language instructors are different from content specialists considering the issue of materials selection. The content instructors treat materials as the source book while language instructors consider materials as the course book.

Reinder (2013, p. 1) notes that "teaching is a delicate balancing act between conformity and creativity." He asserts that language is a personal and complex subject requiring the teachers to react appropriately to the various individuals, circumstances and challenges which are ingrained in teaching it. On the contrary, teachers must adhere to the set objectives, the planned curriculum and try to teach to the test. According to him, these constraints can be best manifested in the course book which can surrender the teacher's freedom with its prescribed content, sequencing, gradation, activities and assessment.

Although the course book is a necessity in the class, it does not mean that teachers are prohibited to bring their own creativity and teaching style to classroom. Edge and Wharton (1998) mention that experienced teachers are the ones who make deletions and bring about change into the tasks in the planning stage and they modify their plans in class in order to provide response to the interactions. Put it in other words, they consider the prescribed materials as a source book rather than a course book.

The results of the present research reveals that content instructors are more likely to use materials which are compatible with the needs and wants of the learners and also they can add endless variety to their teaching through teaching different materials in every session of their classes; however, it is obvious that language instructors are toughly restricted by the rules imposed by the ministry of education and by the language departments' heads.

Language Instructors' Low Income

One of the noticeable differences that exist among the content instructors and language instructors in the present study concerns their payment and position at university. Language instructors are mainly hourly paid instructors who are usually gripped

by the fear of layoff; however, content instructors are the ones who are officially hired by the ministry of science, research and technology and as a result they have a more stable job status and a fixed salary.

The hourly paid language instructors have always been experiencing the ever-worsening economic conditions of universities. Universities continue to allocate shoestring budget to the hourly paid instructors in a way that today these instructors are paid \$2 on average for each hour of teaching in Iran.

The slashed allocation of payment to the hourly paid ESP instructors has the following unfortunate outcomes in all phases of language teaching including preactive, reactive and post-active phases:

In the preactive phase, they have less impetus for syllabus designing, materials selection, evaluating the selected materials and getting ready before the actual phase of language teaching.

The wrong pronunciation of the vocabulary, lack of knowledge about the content area, bewilderment during teaching, presenting an unorganized lesson, inability to provide suitable answers to the students' questions and relying just on translation can be considered as the consequence of the neglect of this phase of teaching by hourly paid ESAP instructors; however, this does not mean that they are unable to observe the requirements of this stage.

Hourly paid instructors can design a careful lesson plan, select suitable materials and become ready for teaching even better than content instructors but due to their short income, they do not spend their time conducting such kinds of activities.

On the contrary, content instructors teaching ESAP have a more stable job and this motivates them to go ahead with a meticulous preparation. In addition, their constant readiness can be due to their expertise both in the specialist field of study and in teaching.

Regarding the latter, Tsui (2003) notes that expert teachers have mental lesson plans which sometimes accompany small notes. The mental lesson plan of content instructors can also be due to the fact that they always teach the ESAP course of a specific major; however, language instructors have to deal with students studying in different fields of study.

Working in these low-income contexts results in the sharp decrease in teacher's motivation and patience to deal with usually crowded and heterogeneous ESAP classes which subsequently can adversely affect their teaching in the interactive phase of teaching.

Above all, they will not reflect on their teaching after the class and as a result they do nothing for the problematic parts of their teaching in the subsequent sessions of their class.

Attitudinal Difficulties

Another important fact that was revealed in the observations concerns the issue of rapport management and mutual respect between the ESAP students and teachers. Spencer-Oatey (2000) defines rapport management as the relationship which involves face management and management of sociality rights understood as "personal/social expectancies ... reflect[ing] people's concerns over fairness, consideration, social inclusion/exclusion and so on". In the present research, it was found that content instructors were more prosperous comparing to the language instructors as far as rapport management was concerned. Content instructors could develop a close rapport with their students mainly because they studied in the same field of study as their students did. In addition,

language instructors teaching ESAP feel downgraded when teaching language to the students of science because they think that their students are more knowledgeable comparing to them just because of the nature of their field of study. Ewer (1983) refers to these problems as “attitudinal difficulties” which are considered as the unwillingness and negative attitudes of the traditionally humanities trained teachers of English toward science which in turn can exert an adverse influence on their students as well as on their own performance in teaching.

The Backwash Effect

Oxford dictionary defines backwash as the unpleasant after-effects of an event; however, in the context of language assessment, washback is defined by Messick (1996) as the influence a test can exert on both language teachers and learners and which subsequently leads them to do things that otherwise they would not naturally do in order to promote or inhibit language learning.

Regarding this issue, Hayati (2008) considers ‘reading for understanding the test items’ and ‘poor translation for the sake of doing the assignments’ as the overriding goals of the Iranian ESP classes. He continues saying that Iranian students studying in majors other than English are required to pass a two-credit Basic English course, a three-credit General English course followed by a three credit (or more) ESP courses according to the nature of their fields of study. Subsequently, he claims that the sole aim of the majority of these students is just to pass the course because they believe that learning English perfectly within a limited course of study is impossible and this leads to a teacher centered classes in which teachers are always translating texts into Persian and the students are busy writing the mentioned translations.

Similarly, the observations made by the researcher in the present study prove the above mentioned facts. In the present research, backwash effect was highly conspicuous especially in classes taught by language instructors. This is because the ESP course of a specific major taught by a specific language instructor was also taught by other ESP instructors in the language department and all the students were going to seat for a similar exam. Due to this fact, all the language instructors teaching the same ESP courses had to teach similarly and follow the same pace of teaching. It seems that translation was the only way to bring everything under control. On the contrary, content instructors are more independent of others and mainly they teach the ESAP courses which are not offered in many groups. Therefore, they do not need to coordinate everything from methodology to test items with other ESAP instructors. They can attune their teaching methodology to the language proficiency of the students and they do not need to finish a set number of chapters in hurry.

The results of the conducted observations demonstrate that language instructors teaching ESAP courses were distinctly more familiar with the fundamentals of ESAP teaching comparing to their content counterparts; however, it is obvious that they had to follow the rules of language department for which they were working and they were not able to decide independently about everything.

Based on the results of the observations, a comprehensive ESAP teacher training course for language instructors must address issues such as learners’ needs, materials selection and adaptation as well as testing; however, the focus of the course designed for content instructors must be on new methods of teaching vocabulary and teaching the four skills. In addition, content instructors must become more familiar with the

English structures which are frequent in the ESAP materials that they are teaching; however, these instructors do not need training on learners' needs and material selection because they are the people who are most familiar with these matters.

Conclusion

Basturkmen (2017, p. 1) mentions that "to date, the literature in EAP and ESP has tended to foreground the needs of learners and background the learning and knowledge needs of teachers". To this end, a needs analysis survey was undertaken with the help of two groups of stakeholders namely language instructors and content specialists teaching ESAP courses at different universities in Iran with the main aim of developing a sustainable teacher education curriculum.

The first research question explored the teaching needs of language instructors and content specialists teaching ESAP courses. In addition, the present study aimed at finding the possible differences in the needs of the mentioned two groups of ESAP instructors considering three areas of knowledge namely professional, procedural and personal needs. The findings of the study support the view that language instructors and content specialists have different teaching needs and therefore should be trained in different in-service teacher training programs which are compatible with their attitudes and needs. It can be concluded that the ESAP language instructors participating in the present research preferred more to be trained in the areas of professional, procedural and personal needs compared to their counterparts.

Moreover, the results of the observation and the semi-structured interview with both language instructors and content specialists revealed that content specialists had less problems regarding the issue of ESAP materials selection compared to language instructors. Furthermore, content specialists evinced more interest in teaching because of their higher income in comparison with language instructors. Also, closer rapport between students and teachers was evident in the classes taught by content specialists because they had studied in a similar field of study. In addition, language instructors mainly teach to the test because they have to seat their students for the final test which is designed by different language instructors teaching the same course.

It can be implied from the present research that most of the mentioned problems that ESAP content specialists and language instructors face can be managed through embarking on a comprehensive ESAP pre-service and in-service teacher training program. In addition, cooperation between the language instructors and the content department, collaboration (a share of experience between the language instructor and the content specialist and team teaching (the actual working of two experts namely the language instructor along with the content specialist) can satisfy most of the needs of both ESAP language instructors and content specialists.

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Appendix A

Questionnaire for ESAP Instructors

Thank you for taking time to fill out the questionnaire. This questionnaire which contains 3 sections (A, B and C) is part of an academic research. The information you provide on this rating is intended for use by the researcher to identify the contents of an in-service ESP teacher training program. The researcher promises to maintain strict confidentiality of your information, so be candid in your answers.

A) Background information.

Gender: Female Male

Teaching experience as an ESAP instructor: _____ years

Teaching experience as an EGP instructor: _____ years

Your field of study: _____ English teaching _____

Teaching at: Public sector Private sector Both

Education: MA MA student PhD student PhD

The ESAP courses that you teach: _____

Do you have specialist knowledge? Yes No

If yes, how did you come to acquire it? Attending lectures Your own reading

If not, how do you deal with the lack of it? Please specify _____

Do you believe that specialist knowledge is essential for ESAP teachers? Yes No

Have you had formal training to teach ESAP? Yes No

If yes, of what form? In your MA/PhD courses Teacher training courses

Do you use a different methodology in ESAP classes from EGP classes? Yes No

B) Indicate your agreement or disagreement by the following statements by circling your responses.

If I take part in an in-service ESAP teacher training program, I want to be educated on

1	Identifying and analyzing learners' needs and expectations	Strongly agree	Agree	No idea	Disagree	Strongly disagree
2	Identifying and analyzing learner characteristics	Strongly agree	Agree	No idea	Disagree	Strongly disagree
3	Designing ESAP tests	Strongly agree	Agree	No idea	Disagree	Strongly disagree
4	Establishing rapport	Strongly agree	Agree	No idea	Disagree	Strongly disagree

Sequel to Table see on the next page.

Sequel to Table.

5	Professional websites, forums, and clubs	Strongly agree	Agree	No idea	Disagree	Strongly disagree
6	Learner's different styles of learning	Strongly agree	Agree	No idea	Disagree	Strongly disagree
7	Different genres	Strongly agree	Agree	No idea	Disagree	Strongly disagree
8	Teacher roles	Strongly agree	Agree	No idea	Disagree	Strongly disagree
9	Disciplinary/professional culture	Strongly agree	Agree	No idea	Disagree	Strongly disagree
10	Theories of ESP learning	Strongly agree	Agree	No idea	Disagree	Strongly disagree
11	How to teach reading	Strongly agree	Agree	No idea	Disagree	Strongly disagree
12	How to teach listening	Strongly agree	Agree	No idea	Disagree	Strongly disagree
13	How to teach speaking	Strongly agree	Agree	No idea	Disagree	Strongly disagree
14	How to teach writing	Strongly agree	Agree	No idea	Disagree	Strongly disagree
15	How to teach grammar	Strongly agree	Agree	No idea	Disagree	Strongly disagree
16	How to teach technical vocabulary	Strongly agree	Agree	No idea	Disagree	Strongly disagree
17	How to teach semi-technical vocabulary	Strongly agree	Agree	No idea	Disagree	Strongly disagree
18	How to teach general vocabulary	Strongly agree	Agree	No idea	Disagree	Strongly disagree
19	How to integrate language skills	Strongly agree	Agree	No idea	Disagree	Strongly disagree
20	lesson planning	Strongly agree	Agree	No idea	Disagree	Strongly disagree
21	Materials selection, adaptation and evaluation	Strongly agree	Agree	No idea	Disagree	Strongly disagree
22	Motivating learners	Strongly agree	Agree	No idea	Disagree	Strongly disagree
23	learner autonomy	Strongly agree	Agree	No idea	Disagree	Strongly disagree
24	Syllabus/course design	Strongly agree	Agree	No idea	Disagree	Strongly disagree
25	Increasing student talk time	Strongly agree	Agree	No idea	Disagree	Strongly disagree
26	Increasing L2 use in classroom and reducing L1 use and translation	Strongly agree	Agree	No idea	Disagree	Strongly disagree
27	Promoting classroom interaction	Strongly agree	Agree	No idea	Disagree	Strongly disagree

Sequel to Table see on the next page.

Sequel to Table.

28	Dealing with Large classes	Strongly agree	Agree	No idea	Disagree	Strongly disagree
29	Adjusting personal beliefs to contextual realities	Strongly agree	Agree	No idea	Disagree	Strongly disagree
30	Critical reflection on personal beliefs about teaching and learning	Strongly agree	Agree	No idea	Disagree	Strongly disagree

C) If you believe that there are other issues which are not included in part B above, please write them in the table below and mark the appropriate box for each item.

31		Strongly agree	Agree	No idea	Disagree	Strongly disagree
32		Strongly agree	Agree	No idea	Disagree	Strongly disagree
33		Strongly agree	Agree	No idea	Disagree	Strongly disagree
34		Strongly agree	Agree	No idea	Disagree	Strongly disagree
35		Strongly agree	Agree	No idea	Disagree	Strongly disagree

