SCHOOL-UNIVERSITY PARTNERSHIP

insights from an international doctorate program on teacher education

EDiTE
European Doctorate
in Teacher Education

SCHOOL-UNIVERSITY PARTNERSHIP

INSIGHTS FROM AN INTERNATIONAL DOCTORATE PROGRAM ON TEACHER EDUCATION

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TABLE OF CONTENTS

FOREWORD

Gábor Halász

The volume the reader has in her/his hand or reads on her/his screen is the outcome of a research project realised in 2019 in the framework of the *European Doctorate in Teacher Education* (EDiTE) project supported by the European Union's Horizon 2020 research and innovation program.[1] As the introduction of this book explains, EDiTE was run by a consortium of five European universities, each of them providing teacher education, and committed to develop a common doctoral program to train researchers interested in the work and education of teachers. The research program presented in this volume was initiated as part of a work package focusing on "building partnerships", coordinated by ELTE University, Budapest. It aimed at exploring the role of School-University Partnerships (SUPs) in teacher education and educational development.

Cooperation between universities and schools in the field of teacher education can be interpreted as a specific form of the "knowledge triangle".[2] This kind of cooperation can provide an ideal framework for linking research, education and innovation in the education sector. Partnership relations between schools and universities can produce various beneficial outcomes.

First, and most importantly, they can significantly improve the quality and relevance of university-based teacher education, making it possible for universities to provide the practical training necessary to develop the teaching skills of future teachers. Universities pretend they are capable to train teachers, and most people do not have any doubt in this, but in reality most of them are not, especially when their main mission becomes creating new theoretical knowledge. The skills to teach can be developed only through practicing these skills. Reflecting systematically and scientifically to practice is necessary but this reflection is possible only if teaching practice really occurs. This is why teacher training universities need schools as partners and take the responsibility for educating teachers in cooperation with them.

SUPs can also contribute to the improvement of the work of practitioners, especially through improving their innovation, knowledge management and research capacities. Effective SUPs can lead to the emergence of "researching schools" or "professional development schools" operating as intelligent knowledge producing learning organisations. In many education systems governments try to transform schools into intelligent learning organisations, and one of the most effective ways of doing this is to connect them with universities which have always been defined as knowledge producing institutions. Teachers and schools in continuous interaction with academics wo do theoretical research have higher chances of becoming reflective professionals who are capable to see their own practice beyond the daily routines.

Furthermore, SUPs can support high quality educational research as they provide stable institutional frameworks for data collections, case studies, action research initiative, classroom observations, advanced experimentations, impact assessments and other forms of research activities. In these frameworks schools may operate similarly to clinics connected with medical

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[1] Marie-Sklodowska-Curie grant agreement number: 676452. See the website of the EDiTE project here: http://www.edite.eu

[2] See: „School-university partnership for effective teacher learning." Issues Paper for the seminar co-hosted by ELTE Doctoral School of Education and Miskolc-Hejőkeresztúr KIP Regional Methodological Centre May 13, 2016 (online: http://halaszg.ofi.hu/download/May_13_Issues_paper.pdf).

universities where it is a normal practice the same individual is both a researcher and a practitioner. In such an environment it is natural that research is fertilized with practical experience and theoretical consideration are continuously tested in daily practice.

Finally, SUPs can also support internal development within teacher training universities as they open channels to "import" new knowledge from the field and allow academics to gain direct practical experiences. Academics for whom "going to the terrain" is a frequent practice often report on being inspired by new experiences they gain and on being energized by this. For this they need partners in the "real world" who can regularly receive them and share their "home" with them. A teacher training university without stable school partners has much lower chances to develop than another one which is in vivid collaboration with schools.

Education systems where decision makers recognise the importance of innovation in improving the quality of schooling are nurturing SUPs. These partnerships can be the basis of "education innovation clusters" bringing together not only schools and universities, but also government agencies, business partners and civil organisations. They can contribute to the dynamisation of the "triple helix" of innovation policies in the education sector boosting innovations that lead to improved quality in educational services.[3] They are a necessary ingredient of innovation policies for the education sector.

Preparing future teachers, developing the skills they needed for effective teaching, or developing the professional competences of practicing teachers cannot be conceived without well-established partnerships between schools and higher educational institutions. These are tasks that none of the two sides alone can achieve effectively. This is, however a challenging relationship: schools and universities have different concerns, they may nurture different cultures, their staff often speak different languages and they sometimes lack the sufficient trust for each other. SUPs are often seen as "third spaces" generating "boundary crossings": places where encounters are not always successful. However, when these different cultures are capable to work together, amazing new solutions may emerge.

As underlined in the introduction of this book the SUP research presented here was conceived and implemented by three "early stage researchers" in the last period of their doctoral studies, assisted by a number of junior doctoral students. The research activity was conducted in a genuine partnership environment: the concept, the instruments and the results were discussed with the representatives of EDiTE partner organisations in the spirit of the "*Guidelines for Building Institutional Links*" developed in the framework of the EDiTE/Horizon program.[4] It was the decision of the young researchers to start working in parallel in four tracks: doing a systematic literature review, designing and conducting two questionnaire based surveys, preparing a qualitative study of SUPs in doctoral education and realising an international comparative analysis based on country case studies. All the four activity track produced substantial outcomes which have been compiled in four separate studies that have later been complemented by a synthetizing paper written by the leader of one of the EDiTE partner organisations (POs).

We can recommend the reading of this book to various audiences. First of all, this might be a useful reading for university-based teacher educators, especially those who are responsible for the practicum component of teacher education. Practitioners involved in educating, mentoring and supporting student-teachers, or doing practitioner research, and, by their

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[3] See: Balázs Éva - Fischer Márta - Halász Gábor - Kovács István Vilmos (2011): Javaslat a nemzeti oktatási innovációs rendszer fejlesztésének stratégiájára [*Recommendations on the Strategy of Development of the Innovation in Education*]. Oktatáskutató és Fejlesztő Intézet. Budapest (online: http://mek.oszk.hu/13500/13532/13532.pdf)

[4] This document can be downloaded from the website
https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5ab474665&appId=PPGMS

position, cooperating regularly with academics might also find interest in this book. Those who study the education, the professional knowledge and the professional development of teachers may also be seen as a relevant "target group". The content might also be interesting for those who have a general interest in development and innovation studies, especially when focusing on the particularities of innovation processes in the education sector. Regulators might also be interested, particularly in case of thinking about how to reconcile institutional rules in the K-12 and the higher education sectors.

This book is the outcome of a common endeavour of a small team of international doctoral students studying or having graduated at the "*Teacher education and higher education studies*" doctoral program of the Doctoral School of Education of ELTE University.[5] This doctoral program has been developed and institutionalised in the framework of the EDiTE project. Since its inception it has received more than twenty international students, many of them from Asia, Africa and also South America. A key strategic priority of this doctoral program is to bridge the gap between academic research on education and school-based teaching practice. The SUP research and the publication of its outcome can be seen as an illustration of this endeavour.

The publication of this book has been made possible by the cooperation between Doctoral School of Education of ELTE University and the "Hungarian-Netherlands School of Educational Management"[6] (KÖVI) operated by the University of Szeged. KÖVI – this is the abbreviation of the Hungarian name of this management school – has been, besides other institutions (mainly primary and secondary schools) one of the EDiTE partner organisations. It has had a special status among POs because of its natural bridging role between schools and universities, built in its operations since the first moments of its creation. The director of KÖVI has significantly contributed to the "building partnership" work package of the EDiTE project as the elected international representative of Hungarian POs and also as the coordinator of the SUP research.

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Gábor Halász
Hungarian national coordinator of the EDiTE project
ELTE University, Budapest

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[5] For the presentation of this doctoral program visit the website
https://www.ppk.elte.hu/dstore/document/355/EDiTE%20program%20description%20%282020%29.pdf
[6] See the English website of this school here: https://u-szeged.academia.edu/Departments/Hungarian_Netherlands_School_of_Educational_Management/Documents

INTRODUCTION

Judit Saád

In the frame of the European Doctorate in Teacher Education (EDiTE) project, supported by the European Union's Horizon 2020, Innovative Training Networks Programme under the Marie Skłodowska-Curie Actions, fifteen early stage researchers with their supervisors and co-supervisors from five partner universities[7] focused on a joint research endeavour in order to do inquiry into transformative teacher learning for better student learning within an emerging European context. The project that took place between 2016-2019 drew on the profound interdependence of educational research and practice; therefore the relationship, networking, partnership or collaboration between schools (the world of practice) and universities (the world of educational research) has significant importance in the story of EDiTE.

This is underlined and supported by the philosophy of the Marie Skłodowska-Curie Actions, Innovative Training Networks (ITN) programmes, as explicitly stated in its Guide. The Guide stipulates that the joint doctoral programme should contribute to reinforcing links between universities/research organisations and the non-academic sector in order to strengthen the transmission and exploitation of knowledge and to enhance the innovation process.[8]

Besides, according to the findings of an EU report on university-business collaborative doctoral education programmes, universities highlighted that such programmes give doctoral students crucial exposure to non-university environments and are seen as an excellent way to improve young researchers' ability to relate abstract thinking to practical applications.[9]

In accordance with the above, in the frame of the EDiTE program, a complex and in-depth institutional cooperation in the form of a growing European network for innovation in teacher education that is easily accessible not only to academics but to practitioners and policymakers as well has been envisaged and implemented. To establish such a network, the five EDiTE universities invited numerous national institutions and organisations (mostly schools) to participate in the project as partners. Those institutions and organisations who had accepted this invitation became formal Partner Organizations (PO) in the EDiTE project, and not only contributed in a great deal to the project but presumably gained knowledge and experience through these partnerships, too.

There were numerous events where project participants including researchers, supervisors, national project coordinators and technical secretariats came together with partner organisations to establish a bidirectional dialogue by sharing research results, mapping out the possibilities of collaboration and discussing relevant issues.

During the project lifetime, an enormous amount of theoretical knowledge and practical experience have accumulated concerning the complex world of school-university partnerships through the cooperation of the five doctoral schools and the twenty-three partner organisations at consortium level. In order to understand the essence of an innovative training network such as EDiTE that was systematically build around an idea of institutional networking, to gain a deeper understanding on the nature of this specific partnership within the EDiTE project and in

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[7] University's of Innsbruck (Austria), Masaryk University (Czech Republic), Eötvös Loránd University (Hungary), University of Lower Silesia (Poland), Universidade de Lisboa (Portugal)

[8] Guide for Applicants Marie Skłodowska-Curie Actions, Innovative Training Networks (ITN), 1.2 tructure, EJD

[9] http://www.eua.be/eua-work-and-policy-area/research-and-innovation/doctoral-education/doc-careers (retrieved 14 December 2016)

the hope of providing useful hindsight into the "operationability" and sustainability of such endeavours, a research team was formed at ELTE[10] that decided to delve more deeply into this rich and complex world of theoretical research and practitioners' everyday practices-interface and conduct a research on the specificities of this partnership within this specific context.

The School-University Partnership research project was designed as a four-pillar study. In the frame of the first pillar, the theoretical framework of the research was established based on a systematic literature review carried out in a multi-dimensional way combining different perspectives of all researchers involved. In the second pillar, next to a small-scale quantitative research on school-university partnership in the EDiTE project context, a larger-scale quantitative inquiry was also foreseen broadening the scope to the national contexts of the EDiTE partner universities. Each partner universities were offered to conduct research within their national context based on the survey tool developed by the ELTE team. In the third pillar the project team used all the gathered quantitative insights that were undertaken throughout the EDiTE project as a base to further investigation through a qualitative design. Finally, in the fourth pillar, several international examples have been explored creating a comparative and analytical perspective towards similar partnerships around the world.

The result of this 4-pillar research will be presented in this study.

Preceding the four pillar studies, a scientific and at the same time, subjective reflection leads the reader into the world of EDiTE, shedding light to the innovative elements it entails from the perspective of doctoral education and teacher learning.

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[10] The research team included the three ELTE ESRs, the project leader and project manager, the national partner organisation representative of ELTE and PhD students whose research topics were focusing on, or were closely related to school-university partnership.

INNOVATION OF THE EDITE PROFESSIONAL DOCTORATE PROGRAM

Tibor Baráth

ABSTRACT

Collaboration between doctoral schools and the non-academic world has large innovative potential. Also, it entails rich learning potential for both sides, at both individual and organisational level. The study explores the unique learning environment created by the EDiTE network, presents the partnership models developed within the project and sheds light upon the innovative methods applied for the partnerships, also presenting the pains and gains of them. It invites for further thinking about this hitherto less-explored research area.

Keywords: innovation, doctoral education, school-university partnership, teacher learning, service design

1. The EDiTE and SUP as innovation

The EDiTE (European Doctorate in Teacher Education) can be considered as an innovation in the field of training educational experts, researchers who deeply understand the interdependence of educational research and practice, thus they can contribute to the higher level learning of teachers which should lead to better student learning. Considering the two-sided nature of learning from different viewpoints – personal learning and team learning, national and global context of learning, the role of practice and research in learning etc. – the program intended to reflect on the complexity of learning, uncover the ways how teachers learn about students learning, and how teachers understand global challenges of education and interpret them in a European context. This approach is expressed by the theme of the program: Transformative Teacher Learning for Better Student Learning within an Emerging European Context.

ELTE – in the framework of the EDiTE program – selected the topic of The Learning Teacher. The ELTE research project defined three approaches to explore the way and the context of teacher learning. The three topics selected were adult learning, work-based learning and organizational learning. ELTE also took into consideration the Salzburg Principles (2005), its renewal (2010) and the suggestion regarding its implementation (2016), which provide guidelines for doctoral education in the European Research and Higher Educational Area. One of the most important messages of the principles was the collaboration between universities/doctoral schools and the non-academic world. The ELTE team elaborated the concept for the cooperation between the doctoral schools and – so called – partner organizations (hereinafter referred to as POs) like schools, teacher training institutions, research institutions. The aim was establish close cooperation between doctoral schools and organizations employing teachers, training teachers, and organisations researching teachers' work. This collaboration aimed to serve the better understanding of the learning of teachers, thus enhancing their capacity to teach their students. In order to realise this goal the preparation of doctoral students (early stage researchers – hereinafter referred to as ESRs) provides possibilities for them to visit POs, join them for a period (a week or a month) supporting their developments, doing joint researches, etc. The concept and guideline for POs was based on deep discussion among all stakeholders, and the Board of the EDiTE program decided about the rules (See Kovacs, H. 2019).

1.1. Innovating doctoral education – involvement of partner organizations in the doctoral program

As mentioned above, the EDiTE program itself and also the involvement of the POs can be considered as an innovation in the field of training doctoral students and forming new ways of working for doctoral schools. This feature of the program was not really accentuated during the investigation of the school-university partnership research; however, it is crucial, as it can energize the system development processes. For better understanding we define innovation and give a short interpretation why the collaboration between the doctoral schools (hereinafter: DSs) and POs can be considered as innovation. Following that, we also analyse how the DS-POs cooperation can be interpreted in the frame of the Triple Helix and the Knowledge Triangle model.

To define innovation, we turn to the Oslo Manual. The 3rd edition[11] of the "Manual defines four types of innovations that encompass a wide range of changes in firms' activities: product innovations, process innovations, organisational innovations and marketing innovations" (OECD, 2005, 16-17).

- DSs-POs collaboration as product innovation: the content of the doctoral training program (the curriculum) differs seriously compared to the traditional doctoral program as it had to include working together with POs. It has led to new topics among the courses the ESRs had to follow. The approach of the training of ESRs, the characteristics of teaching and learning had to be changed because of the involvement of external actors in the doctoral program.

- DSs-POs collaboration as process innovation: this area needed lots of changes compared to a traditional doctoral program. It made necessary to plan and rethink the relation triangle of ESRs, supervisors (faculty)tutors of DSs and consultants of POs. The involvement of the POS into the learning process of the ESRs made it essential to define clear roles and responsibilities and also to create transparent procedures on how the ESRs can choose a PO, how they decide about the types of cooperation and work by a certain PO (Kovacs et.al, 2019, 6). The process innovation appears also in the delivery of a new way of knowledge creation and in the enhanced focus on individual needs during the doctoral program. New methods of teaching appeared, the collaboration between the ESRs and the representatives of the POs supported different learning methods; knowledge sharing, common knowledge building became part of the daily activities of the stakeholders. Several workshops and conferences – both at national and international level – served the exchange of experiences and knowledge transfer. These conferences – and specially the workshops – built on active participation and inspirations. The applied methods were selected in a way that supported the creative, reflective work (e.g. World Café, brainwriting, Value Proposition Canvas, etc.)

- DSs-POs collaboration as organisational innovation: The involvement of the POs into the training of ESRs – enhancing the external relations – is organisational innovation by definition. We can also consider it as different from an organisational change, since it aimed – the practice proved it – at improving learning satisfaction and learning results of the ESRs. The implementation of DSs-POs collaboration needed strategic decision on behalf of the Program Management Board (PMB), and from the governing bodies of the DSs. Because of that, the PMB had to decide about the principles of cooperation and the regulation of the cooperation. (See: Guideline for Building Institutional Links).

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[11] However, the 4th edition of the Oslo Manual appeared in 2018, and it reduced the definition of the innovation, applying two categories (instead of the former four): product innovations and business process innovations. The earlier one fits better to our field, so we kept that.

- DSs-POs collaboration as marketing innovation: Maybe this is the least characteristic element of the innovation. However, "Marketing innovations include significant changes in product design that are part of a new marketing concept." (OECD, 2005, 50), and planning the new doctoral program (EDiTE), and as a part of it the DS-PO partnership needed serious changes in the planning process itself. PMB had to decide at the kick-off meeting about the POs role and main tasks. Also the types of cooperation with POs were discussed and agreed on.

1.2. Involvement of partner organizations in the doctoral program as boundary crossing

As we mentioned earlier, the involvement of the POs in the doctoral program in education can be considered as an innovation. Thus, we consider it important to examine the program from other points of view as well. While we briefly analysed the DSs-POs collaboration based on the innovation definition – based on the Oslo manual, 3rd edition – we expressed that the involvement contributes strongly to the knowledge creation, sharing and application. Regarding the relation of knowledge management and innovation we also can investigate whether and how we find evidence on boundary crossing.

Yrjö Engeström introduced the concept of boundary crossing into the knowledge management and innovation as he recognized the importance of applying new, different cognitive schemes and practice-based solution for the birth of new knowledge.

As Yrjö Engeström and his fellows clearly stated, boundary crossing is a risky action as it might lead to organizational conflicts. They used well-formed aspects which support the analysis of the boundary crossing itself. We use the categories applied in NOIR+ (ELTE PPK, 2015, 43).

Table1: Investigation of boundary crossing in DSPO relation (Source: Engeström (1995), ELTE PPK (2015); own edition)

Aspect of investigation	Investigated workplace: DS-PO
Who cross the boundaries	All actors: tutors of DS, ESRs, teachers and/or other workers of POs
Where the boundary was?	Between the academic and practice field
What problems those who cross the boundaries had to face?	The actors in academic and non-academic fields use different languages, have differing priorities, using the same expressions with different meanings.
What tools do they use?	Common meetings, workshops, discussions. Service design methodology to inspire the participants to use different approaches in solving problems, answering questions.
How does the process go further?	A guidance was developed supporting the collaboration of the DSs and POs. New interpretation of the researcher profession was born, SUP was defined as a new field of research.
How does theory and practice link to each other?	Types of partnership show the possibilities of the cooperation. POs were inspired to define problems (to ESR(s)) which need research methodology to find the relevant answers to their problems. DSs were supported to apply their academic knowledge to answer

practical problems (in this case regarding teacher learning).

Engeström (2008) defined 4 types of boundary crossing in education: between age groups, spatial sphere, time and disciplinary areas. If we want to adapt this categorization, the 4th type seems to be the most relevant, as the academic field and the practice field use somewhat different knowledge fields and traditions. Partly it can be considered as crossing age groups as mostly the ESRs belong to the young generation while the representatives of the POs usually older and more heterogenous. Implementing the DSs-POs partnership usually need the change of the physical space. To sum up, we can conclude that DSs-POs collaboration can be considered as an innovation using the definition of innovation and also the theory of boundary crossing.

1.3. Hybrid learning environment – innovation helixes in doctoral education

One of the special forms of boundary crossing is the hybrid learning environment where traditional knowledge transfer (based mostly on information sharing, with the role of a listener) and the active, real problem-based learning are combined (where the participants take an active role, initiate solutions, etc.). The traditional academic education of doctoral students and the POs involvement in their training is a clear example of forming a hybrid learning environment. The school-university partnership and as a part of that the DSPO collaboration promotes planned, harmonised activities, where the classic learning methods and the participatory learning form a new system. The active interaction between the academic and practice fields not only provide new possibilities for learning but also acts as a source of knowledge creation and leading to the generation of a new learning ecosystem.

Learning is a central notion of nowadays world. The shift from the industrial society to the knowledge society has brought great changes in the relation of the actors who had decisive role in the development of the economy. The originally dyad relation between government and industry (Figure1) moved towards a triadic relationship in which universities became the third actors. Innovation has become more and more important, and the Triple Helix concept (Figure2) proved a powerful model to understand the changing relation which arose among the main actors (Etzkowitz, 1993, Etzkowitz and Leydesdorff, 1995). Based on the research and development programs of the last two decades – which uncovered the complex and dynamic nature of innovation – the Triple Helix literature shows two complementary knowledge bodies or two complementary perspectives as the neo-institutional and neo-evolutionary perspective. The first distinguishes three configurations: a) statist (state dominant), b) laissez-faire (limited state intervention), c) balanced (partnership-based joint initiatives and activities (e.g., De Rosa Pires and De Castro, 1997; Etzkowitz et al., 2000). The configuration can strongly influence the manoeuvre of universities e.g. which rules they should follow in founding and launching doctoral programs. The other perspective is the neo-evolutionary one that would need more place to adapt to our core topic and it is beyond our actual possibilities.
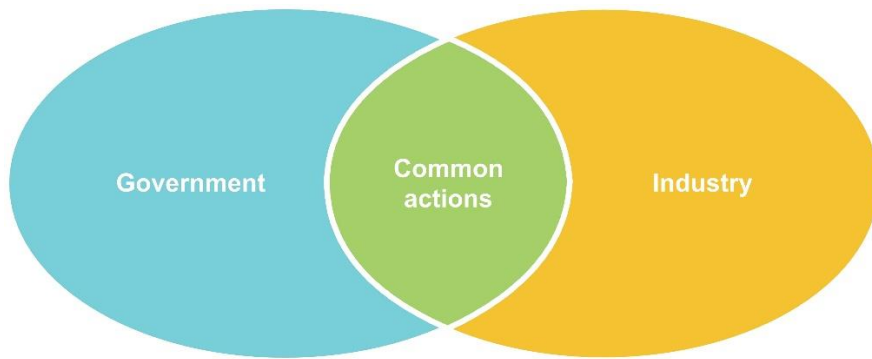
Figure1: Government-industry relation
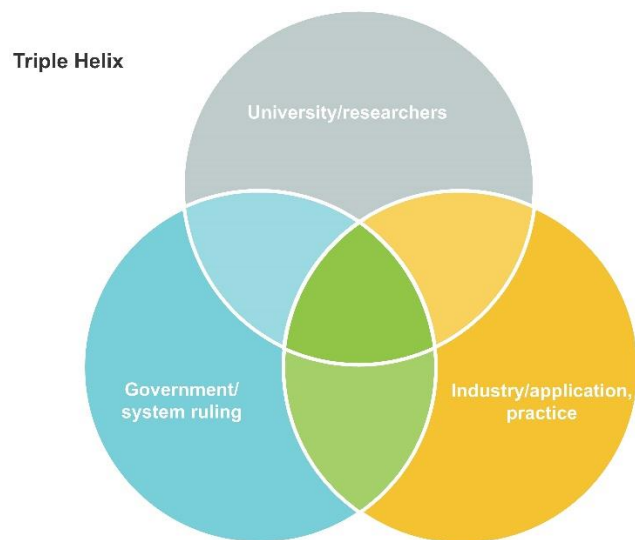
Figure2: Triple Helix in knowledge society - own edition

The Triple Helix is a dynamic model of innovation which shows the increasing role of university; this dynamic process mirrors the relation among the three actors, who complement each other; they partly overlap each other activities, sometimes also taking over the other actor's role (Vas, 2012).

Halász et al. (2015) compared the Triple Helix logic with the knowledge triangle (education, research, innovation) appearing in the EU innovation policy, and they identified the same dynamics in both (ELTE PPK, 2015). They also interpret the model regarding education, and specially, for the EDiTE program. In that case, the authors matched education and teacher training institutions (also providing continuous professional development programs for in-service teachers); research and pedagogic knowledge base (fostered by the experiences of teacher training, education research and school practice); innovation – school practice (ELTE PPK, 2015; EDiTE, 2014); see Figure3.

Figure3: Knowledge triangle – EDiTE program

Last, but not least, we want to mention the core characteristic of the Triple Helix which is the concept of the entrepreneurial university. It has a clear link to the so-called "third mission" of higher education taking proactive role in their local environment, supporting local actors in producing new knowledge and using active and creative ways over existing ones, bein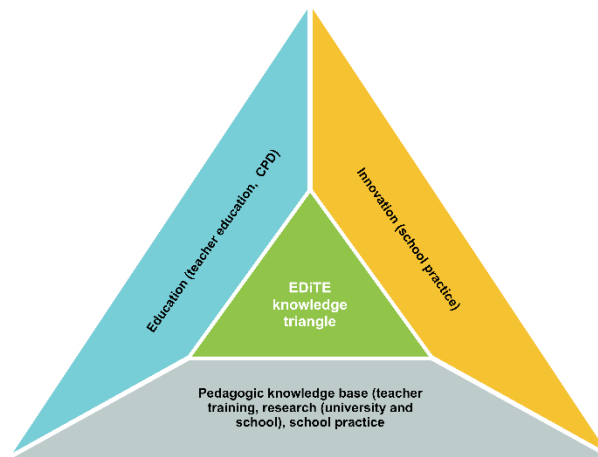g involved in the socio-economic development if their environment. This way, universities take part and/or initiate new innovations among the main actors (academic institutions, government, industry (represented by firms)) and these processes go to a nonlinear way of learning and production of new knowledge. The original interpretation – in the Triple Helix model – includes the universities providing learning possibilities not only for individuals but also for institutions, and they equipped their students with entrepreneurial competencies as well. Applying this approach to education, we can replace firms with schools and other organizations dealing with the development of human capacities (can be public or private). When we speak about entrepreneurial competencies we do not focus on students (e.g. future teachers) becoming able to establish and run firms or becoming entrepreneurs (however it is also the part of the meaning), but rather we think that the entrepreneurial university supports their students to acquire skills such as high level communication, strategic planning, rational risk taking, the basics of leading and management issues, etc.

The entrepreneurial university should also support organizational learning – besides individual learning. This is an important interface for the school-university partnership. The university – understanding the problems and challenges arising at schools – applies research as a methodology to support stakeholders to find answers to their questions. This is a process that changes the university as well. Those lecturers/researchers who are involved in researching and answering school level problems, would have different viewpoints and become more sensitive towards real-world problems. These effects influence not only thinking at the individual level but also the organizational norms, values and culture; thus the process supports the development of the university as well.

With the evolution of the knowledge society, experiences, facts and evidences became richer, supporting the researchers to refine the concept of Triple Helix and identify other actors and factors that can influence the innovation capacity through the economic development of our modern society. This way the Quadruple and Quintuple Helix was born and added the civil and public sphere and the effect of the natural environment to the original actors and has brought further dynamism in the innovation process (Leydesdorff, 2010, Carayannis and Campbell, 2010, 2012). However Leydesdorff (2012, 33) draws attention to the risk of introducing new helices: "One may wish to move beyond three relevant selection environments, but also a

fourth[12] or fifth[13] dimension would require substantive specification, operationalization in terms of potentially relevant data, and sometimes the further development of relevant indicators."

Taking into consideration the above-mentioned risk, as there is no room for deep analyses of the new helices, I try to interpret the Quintuple Helix regarding education, and specially, regarding the school-university partnership (Table2).

Table2: Interpretation of the Quintruple Helix

Original categories of the Quintuple Helix	Interpretation of the Quintuple Helix regarding education	Interpretation of the Quintuple Helix regarding DS-PO
Government	Teacher education and its regulations	Doctoral education and its regulations
University/research	Pedagogic knowledge base (research carried out by universities and schools)	Pedagogic knowledge base (research carried out by universities and schools)
Industry	School practice, innovation	Doctoral education, innovation (involvement of POs)
Civil and public sphere	Requirements of the students, parents (e.g. entrepreneurial competences)	Requirements of the ESRs (e.g. entrepreneurial competences, applicability of the researcher knowledge)
Natural environment	World of work (21st century skills)	World of work (jobs/tasks needed researcher competencies)

We can see the interpretation of the Quintuple Helix for DS-PO relation on Figure 4. The figure includes not only the categories of the 5 elements helix, but also shows the relation of them. All elements are interrelated to each other in a cycle. It expresses the complexity of the learning process going on at a DS, and it is reflecting on the integration of the processes. The doctoral schools are traditionally purely academic institution. The training program applied in the framework of the EDiTE crosses this boundary and incorporates the practice field into the teaching and learning process. It became necessary not only to change substantially the curriculum for the doctoral students but to also initiate substantial changes in the applied methodology of learning

While the pedagogic knowledge base belonged exclusively to the university/DS as they planned implemented research, the EDiTE program engaged the POs into the process. This had serious effects on the pedagogic knowledge base, it modified the selection of the research topics and brought it closer to the real-world problems in the field of learning teachers. POs could thus offer small research projects to the ESRs in harmony with their doctoral topics and involve them in supporting the POs's development processes with their newly acquired knowledge in their fields. All these catalysed a more intensive and colourful knowledge production, knowledge sharing and knowledge application process.

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[12] Leydesdorff refers here on Carayannis EG, Campbell DFJ (2009) 'Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem. Int J Technol Manag 46(3):201–234
[13] Leydesdorff refers here on Carayannis EG, Campbell DFJ (2010) Triple Helix, Quadruple Helix and Quintuple Helix and how do knowledge, innovation, and environment relate to each other? International Journal of Social Ecology and Sustainable Development 1(1):41–69

Regarding the doctoral education, we would like to highlight one difference regarding the learning process and learning environment. While the traditional DSs recognise doctoral students' learning as individual processes, it is reflected by their courses, tasks end exams, EDiTE supported the intensive collaboration of the ESRs. The 5 universities involved in the project also cooperated very closely as their students spent one semester (or more) at another university. It was supposed that the universities harmonize their training programs and the applied methods as well. The ESRs formed a close learning network, not only those who studied at the same university but all others as well. Both conferences and frequent virtual workshops supported the cooperation among the ESRs who provided support to each other in learning. The network of POs was added to this learning environment. POs provided new learning possibilities supporting the ESRs in interpreting their academic knowledge for solving problems in practice. Starting from a practical problem, it was put into a theoretical framework and thus helped the practitioners in gaining a deeper understanding about their problem.

These processes described above supported the ESRs – after all, their training is in the focus – to define clear goals for themselves and thus formulating requirements towards their training both as regards the content, the applied methods and the relation to their consultants and mentors.

Last, but not least, the ESRs had exclusive possibilities to discuss their competencies and how they can use them in practice. POs provided special possibilities for ESRs to practice their competencies and understand more deeply the ways they can use their research competencies. As we will discuss later, it has led to the re-definition of the goals of doctoral training program.
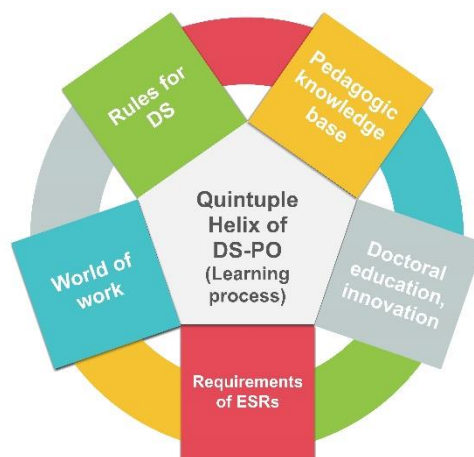

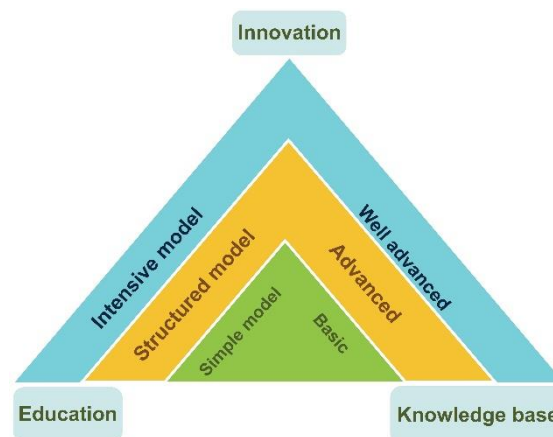*Figure4: The Quintuple Helix of DS-PO partnership*

Figure5: Types of partnership with Knowledge Triangle

Figure5 focuses on the learning possibilities provided by the POs in EDiTE, making possible the different levels of involvement at PO level researching and learning, using the knowledge triangle as a frame. However, the type of partnership discussed in Chapter3, it is wise to sum up briefly these types for the better understanding. The role of POs is to establish inspiring learning environment for ESRs during their collaboration with their teachers, which supports the knowledge production. POs should act as partners in joint (research) activities and the utilization of the produced knowledge. POs make it possible for the ESRs to learn in/about/from organizations for better teacher learning. *Learn in* means ESRs can study how teachers act and work in their school. They can thoroughly understand how they reflect on their actions and build their knowledge further regarding learning. *Learn about* means that ESRs can learn about the organizational processes, in which not only the teachers' work but also their learning is embedded. Lastly, *learn from* means that ESRs can get into a network and they can learn from the actors of the organization and from the organization itself. It means that ESRs can see and study how problems can arise from the practice and how research can be used to solve the problems arose. These learning process can be supported by the different types of partnership:

- *Simple model* (ESR as visiting researcher): This form the cooperation remains at a basic level, with mutual visits, information sharing; observation, (in)formal talks, interviews are part of the program and at least one direct or virtual meeting per year is foreseen.
- *Structured model* (ESR as active researcher): In this form the PO and the ESR can establish common (smaller size) research program, which fits into the ESR's topic. In this form partners create more advanced and structured cooperation with well-defined rules.
- *Intensive model* (ESR as reflective researcher): Besides activities planned in the *Structured model* it also includes deep reflections on learning at different levels (personal, organizational, program). In this form partners intensively engage in common knowledge sharing; understanding the organizational environment of teacher learning, role of the leadership in teacher learning; ESRs as consultant in school development, etc.; and creating activities.

Figure6 provides a visual summary about the levels, layers and actors about DS-PO collaboration as a special form of school-university partnership.
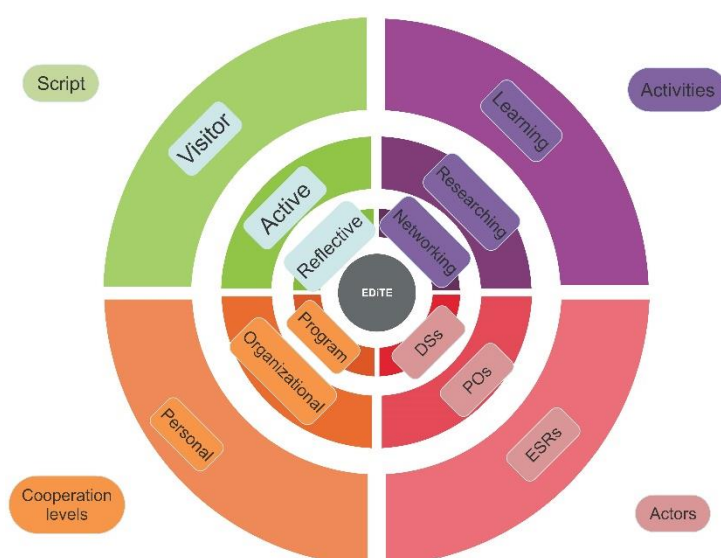

Figure6: Layers of EDiTE SUP collaboration

2. Innovative methods in DS-PO cooperation

When we planned the professional program for and with POs it was important to find methods that inspire the participants, support the work of them who are coming from different (organizational and national) culture, liberates their thinking and inspire them to find new ways of activities. We decided to use the service design methodology as it serves and supports creative thinking and dedicated participation in the planned processes.

Service design is rooted in service marketing. Service design is based on the service dominant logic which was conceptualised firstly by Vargo and Lusch in 2008. They stated that services cannot be planned by applying the same logic then in case of products. The service design as multidisciplinary approach means harmonised planning of people, processes and infrastructure for improving the results and user experiences. It is a creative process which builds on the involvement of all stakeholders, organised intensive interaction among them which leads to co-creation of values (Vargo and Lusch, 2014). Service design applies tools and methods which foster involvement and value creation.

Although the creative and collaborative work was a common feature of the program, here we want to highlight two events and through them show the results and the effect on the school-university partnership in general, and on the DS-PO relation in particular.

2.1. Feedback on DS-PO collaboration taken by the international stakeholders

As stated above, the EDiTE aimed to develop and implement new approaches and methods into the training and development process of young researchers in the field of education. One of the core elements emerged in the form of intense and structured cooperation between DSs of the universities and the POs, mostly schools but there are educational service institutes, leadership training schools, background institutions of the ministry of education, etc as well.

The closing conference in Lisbon provided time and place to organize a special meeting for the university lecturers and supervisors, ESRs and PO representatives to analyse and discuss the form and results of this cooperation and focus on the future collaboration as well. An interactive presentation was provided to the participants about the first results of the SUP research – the results appear in the next four chapters – and, after that, applying an inspiring method (brainwriting, description in Annex1) the DS-PO collaboration got under scrutiny. It made possible to have answer and reflection on the following questions:

- Question1: What kind of process do you offer to select new Partner Organizations in the future? Who should decide about it? What facts should be used in this process?
- Question2: How do you foster the close cooperation between Doctoral School/Partner Organisation, researchers and practitioners?
- Question3: How Partner Organisations can contribute to the use of the research results in practice; in other words, how Partner Organisations can apply the research results in their daily work to enhance the quality of learning micro, meso or macro level?
- Question4: How Partner Organisations can articulate their research needs? Do you foresee any structure/method to empower Partner Organisations to feed their needs in Doctoral Schools' programmes?
- Question5: What kind of results, gains can be realised at organizational and personal level through involving POs into a doctoral program? Think about the potential (or gained) benefits both for Doctoral Schools; you can use your experiences you've already had in the EDiTE program.

- Question 6: What role the POs can have in intensifying the learning process in the doctoral program for the doctoral students?

The question supported to make connections between the experiences of the DS-PO cooperation and the so called EDiTE Position Paper which dealt with the future possibilities after closing the project. Our aim is not to provide a comprehensive analysis of the results but rather to give example how the inspiring methodology – based on service design – supported the creative work. The participants – who worked in 6 groups – gathered 189 concrete suggestions, they discussed, structured and visualised them during appr. 40-50 minutes. More than half of the suggestions arose inspired by Q1 and Q2. The most important messages of the workshops can be summarised as follows:

- POs involvement into the doctoral program proved to be an open-minded approach of the academic actors. The selection/involvement of POs is a complex task which makes necessary to apply comprehensive criteria for that, which be evidence-based and transparent. All stakeholders (POs, their maintainers, universities, DSs, researchers, ESRs teachers, also students) should be involved in this process.
- Q2 inspired strongly the participants and their suggestion – like participatory planning towards collaborative work, techniques for mutual empowerment, create common language, shared learning – appeared in several times answering other questions in the workshop.
- Trust building proved one of the most important issue, several groups highlighted the importance of that, suggesting also techniques and activities to reach it.
- In harmony with the trust building the equality of the actors, the close cooperation between the academics and practitioners also came out.
- Q6 served as a kind of integrative question focusing on the future. The participants suggested to organize action researches involving the PO staff, having PO level activities – workshops, conferences – with the participation of ESRs and university staff members, plan and revise the goals of partnership together which should be born in a co-creation process.

I can state, that the – relatively very short – workshop proved the power of applying creative technics in assessment and future planning. The results of this event supported the planning process of a Hungarian workshop, which was embedded into the SUP research program.

2.2. Analysing and developing SUP in the framework of the EDiTE program – goals and method

The workshop – organized in June 2019 – aimed to contribute to enhancing knowledge as regards School-University Partnership taking into consideration the context, defined by the EDiTE program. It means that our aim was to get deeper understanding regarding how teachers learn, and how POs can contribute to the learning process of young researchers who take part in a doctoral program in the field of education.

We decided to apply a creative and inspiring method- coming from service design – called Value Proposition Canvas (later: VPC; description and handouts in Annex2).

The Value Proposition Canvas is a tool that enables a detailed description of the offer (product, service) of a particular institution, organization for specific target groups, as well as an analysis of how the organization, institution's value to be created and the expectations of the customer groups fit together.

2.2.1. School-University Partnership focusing on teacher learning

In this case, the VPC is aimed at how ELTE can continuously develop its teacher training programs, preserve the quality of their operations and improve their performance as a result of their cooperation with schools, bearing in mind the expected (or discovered and familiar) expectations of the target group. Teacher learning encompasses the professional life of teachers, extends to all types of learning (e.g. research done by teachers supported by the university; school development is also a field for teacher learning; cooperation with schools is also a learning opportunity for the university and its actors; and development of the university).

2.2.2. School-University Partnership – Collaboration between Educational Doctoral School and Partner Organizations

In this case, the preparation of the VPC focuses on what the expectations of the teachers, students and partner organizations of the doctoral school (heads of schools, teachers) formulate during the cooperation; what activities are identified in the field of doctoral training in the field of research, the application of research results, through the development of learning.

The workshop was carried out in three groups. First, two groups worked parallel with each other focusing on the two subtopics of SUP (see above). The third group dealt with again the DS-PO cooperation.

Participants of the workshops:

- Workshop1 (two parallel groups): supervisors, ESRs from the EDiTE program, other invited doctoral students, representatives of the project leadership
- Workshop2: representatives of the POs, representatives of the project leadership

2.2.3. Result – innovative method in an innovative program

Following the VPC method (Figure7), we draw up the customer profile and after that defined existing value proposition and redefined it. The workshops made possible to gather information both the results achieved and the planned future.
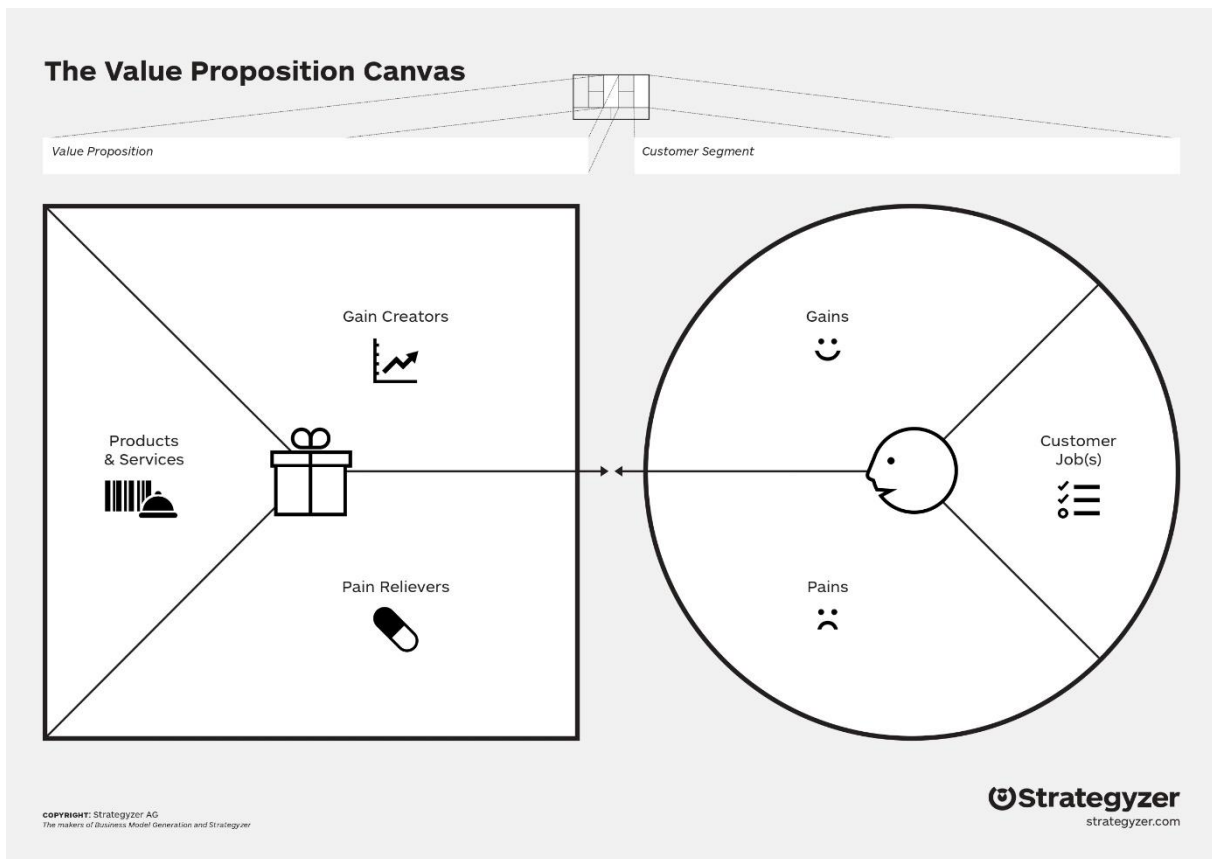
Figure7: Value Proposition Canvas, Source: Strategyzer.com

Participants started to deal with the customer segment, continued with the value proposition. First, they set up their own (personal) list for the categories of the customer segment (customer jobs, pains and gains; 5 elements regarding every part), after that they discussed their list, lastly, they ranked the listed elements. After that they turned to the value proposition and elaborated their lists as well. I adapted the trigger questions to the concrete topics helping the participants to understand the content of the certain categories precisely (Annex2). Finally, they related the gains and gain creators, pains and pain relievers selecting from them the most important. The canvas and the lists – using post-its – made possible to visualize the results (Figure8). The discussed, ranked, related elements can serve a firm basis for the development of the SUP in both fields.
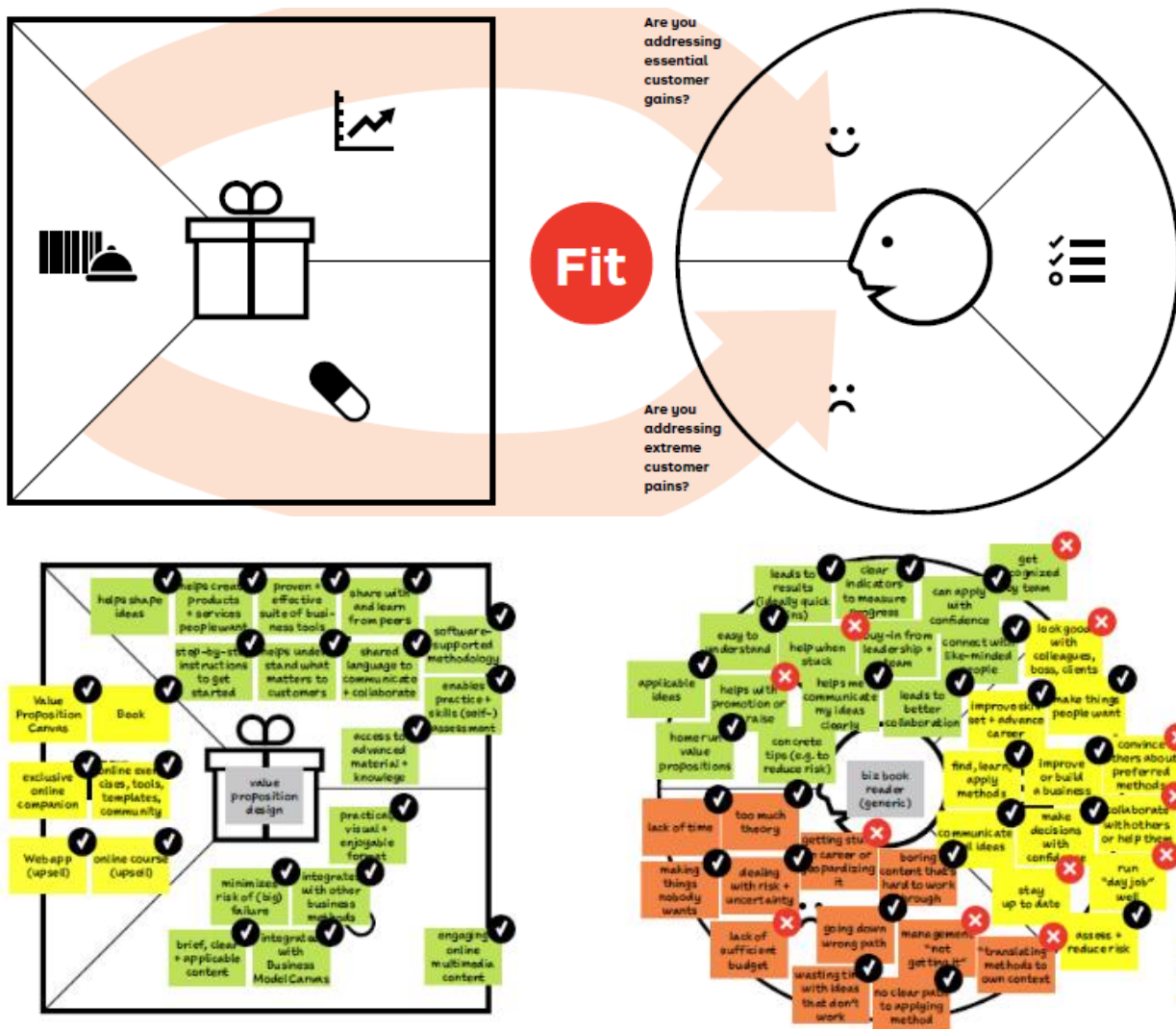
Figure8: VPC with lists and relation, Source: Osterwalde et al. (n.d.): Value Proposition Design, 43-45. Wiley.

Without doing deep analyses of the VPC we want to show how effective the applied method was. The inspiring method fit well to the innovative approach of SUP. The principles defined in the PO guideline – as equality, mutual understanding, deal with challenges etc. – were identifiable in the realised and expected gains. The mutual learning, knowledge production (and suing and sharing the knowledge) reflected that. Joint researches can serve the high quality of learning both personal (teachers, student teachers, ESRs, supervisors, etc.) and organizational level (schools a learning organization, schools as "doctoral students", real life inspired research programs etc.).

The participants identified several pains, problems, challenges and they suggested interventions as well. Bureaucracy seemed an important obstacle for all actors. The participants also dealt with motivation in different aspects (time, financial background, enthusiasm). They expressed that clear and mutually defined goals, problem-based planning of joint activities (research and development) support to have a common language (while we could experience that the academic and the practice "world" use very different one), thus the process can lead to solve the problems, reduce the earlier identified pains. The intensive communication and the transparent processes helped the actors to build up trust, speaking honestly about their fears (e.g. power issue). They also suggested to establish an educational innovation cluster with the involvement of the third party (business). It catalyses the higher-level cooperation and networking. The complex situation supports the improvement of change management skills as

well as boundary crossing skills (e.g. break through the wall between the academic world and practice; involving POs in the doctoral program means sharing the control over the training of ESRs which is a sensitive power issue.) These skills help the actors (schools/POs and universities/DSs) understand better each other and the problems arising on organizational and societal level. This is an intensive learning process where the actors *learn from* each other: POs learn from DSs how theories help them to understand deeply their daily challenges, using helicopter view to see their work from a distance, use research as a tool for problem solving and organizational development. DSs learn from POs to explore real life problems, find ways from the problem to theory which is useful for solving the identified problems. They can *learn about* each other: e.g. schools should understand the academic standards; DSs should understand the problems producing by the daily life practice. Lastly, they can *learn through* collaboration how they can build trust and common knowledge.

The world of schools and universities is a complex system, an ecosystem that can be looked at from various "customers" viewpoints (e.g. schools, teacher education institutions, doctoral programme; institutional and individual level, etc.). With the help of the VPC method participant stakeholders explored the needs, expectations, pains and gains of potential customers and developed complex services based on them. As a result of intense shared thinking the VPCs prepared visually showed the complex service systems. Participants became more convinced that partnerships on teacher learning based on mutual respects and acknowledgment between the world of practitioners and the academia could yield fruitful results with multiple yields for all.

3. Closing remarks

Finally, herewith please find some thoughts about the gained results, challenges, the role of reflectiveness and planning that can lead to stabilize the results, and help us to provide new ways of learning both individual and organizational level regarding the school-university partnership.

The EDiTE has had significant impact on the development of SUP and produced important benefits for all actors. It has led to the recognition of the importance of the DS-PO collaboration as a new research field and co-operation. However, although SUP is a well-known research field, the partnership at the doctoral level training is unique. This is one of the greatest potentials of reciprocal effect which depends very much on the openness of the university. It is obvious that DS can support PO in their professional development. The reciprocal effect means that the school/PO can influence the organizational development of the university and as a part of that, the DS as well.

Those researchers and supervisors who work closely together with schools and practitioners definitely would have different views about the role of research and science. They not only can become more sensitive towards the practical problems and issues, but they can also learn to move between "worlds", thus contributing to the demolishing of the traditional wall between academia and the world of schools. This knowledge and attitude have impacts not only at the personal level but – through the professional discussion among the researchers at the university – also at the organizational level. A DS having strong collaboration with POs probably would ochoose different topics offering their students, provide and organize different learning environment, consider more important to produce research results which can increase the quality of learning at POs as well. So, the cooperation supports the evolution of a common shared language between schools and universities.

The results achieved during the project were accompanied by bottlenecks and challenges. One of the most important was the lack of time that was emphasised by both sides' representatives. In spite of the guideline developed for the DS-PO collaboration, there was some

critical voice as regards more concept would have been needed for the cooperation. However, it is the normal way of innovation getting into practice.

The project produced clear, however fragile results. Taking into consideration the fast changing world, the fast-speed technological development and the increasing complexity of the world, all these push education – public and higher – to be more adaptive, to support and inspire their learners (students, young researchers and also their teachers and researchers) to learn and make effort for both personal and organizational development. However, thinking out of the box, leaving the comfort zone is one of the greatest challenges both at personal and organizational level. That's why collaboration, its concept and implementation, the continuous development is the key issue for the actors. Balance needs to be found between creative thinking and implementation procedures (working out procedures at organisational and individual levels), planning this process step by step is crucial. The collaboration fosters the organizations (DSs, POs) to extend their roles: DS can act as advisor and service provider for schools (school development), while POs can enhance researchers' competences, can influence the content, applied teaching methods and learning outcomes of doctoral programmes (university development). A medium-term strategic plan (3-5 year) and a short term (1 year) action plan would be needed to stabilize the gains that EDiTE has achieved already and increase them further. Any plan needs the active and continuous participation of the stakeholders in the process, needs altering, creative and divergent phases and structured convergent phases.

Finally, I want to get back to the time challenge. While it is without question that our turbulent world doesn't make it easy to find time for such activities than the DS-PO collaboration. While it is very attractive, there is no question it is partly jumping into the dark. There is no built highway, so the actors should find and cut the path for themselves. Anyway, it is basically depending on the priorities which the actors can decide about. Everybody has 86,400 seconds a day. No second can be repeated if we do not use it well, but we can learn from what we have done, and learning supports us to do it better next time.

References

(OECD, 2018): *Oslo Manual 2018. Guidelines for Collecting, reporting and Using Data on Innovation.* 4th edition. OECD, Paris.

Bologna Seminar on "Doctoral Programmes for the European Knowledge Society" (Salzburg, 3-5 February 2005). *Conclusions and recommendations*. Retrieved 11 October 2019 from https://www.eua.eu/downloads/publications/salzburg%20recommendations%202005.pdf

Carayannis, E. G. and Campbell, D. F. J. (2012): Mode 3 Knowledge Production in Quadruple Helix Innovation Systems. Twenty-first-Century Democracy, Innovation and Entrepreneurship for Development. in: *Springer Briefs in Business*. 7. pp. 1–63.

Carayannis, E.G. and Campbell, D.F.J. (2010): Triple Helix, Quadruple Helix and Quintuple Helix and how do knowledge, innovation, and environment relate to each other? in: *International Journal of Social Ecology and Sustainable Development.* 1(1), pp. 41–69.

de Rosa Pires, A., and Castro, E. A. de (1997): Can a Strategic Project for a University Be Strategic to Regional Development? in: *Science and Public Policy*, 24(1), 15-20.

EDiTE (2014): Teacher education and teacher education policies in the European Union. Issues Paper. Final conference of the EDiTE program. 3rd-4th July 2014. Budapest (online: http://www.edite.eu/files/ISSUES_PAPER_EDiTE_Budapest_conference_Issues_Paper_201407.pdf)

ELTE PPK (2015): *"Okos köznevelés". Javaslat a Nemzeti Oktatási Innovációs Rendszer stratégiájának kiegészítésére.* „NOIR+ stratégia". (manuscript, available: http://halaszg.ofi.hu/download/A_NOIR_plusz_%282015.07.26%29.pdf)

Etzkowitz, H. (1993): Technology transfer: The second academic revolution. in: *Technology Access Report* 6, 7-9.

Etzkowitz, H. and Leydesdorff, L. (1995): The Triple Helix: University -Industry -Government Relations: A Laboratory for Knowledge-Based Economic Development. *EASST Review* 14,14 -19.

Etzkowitz, H., & Leydesdorff, L. (2000). The Dynamics of Innovation: From National Systems and "Mode 2" to a Triple Helix of University-Industry-Government Relations. in: *Research Policy*, 29(2), 109-123.

EUA (2010): *Salzburg II recommendations. European universities' achievements since 2005 in implementing the Salzburg Principles*. EUA, Brussels.

EUA-CDE (2010): Implementing the Salzburg Principles. In: *EUA-CDE-news*, Issue 10. Retrieved 11 October 2019 from http://www.phdcentre.eu/inhoud/uploads/2018/02/EUANewsIssue10_LYpublicatieHS.pdf

European University Association (2016): *Doctoral education – Taking Salzburg forward. Implementation and new challenges.* EUA-CDE, Brussels.

Leydesdorff, L. (2010): The Knowledge-Based Economy and the Triple Helix model.in: *Annual Review of Information Science and Technology*. 44. pp. 367–417.

Leydesdorff, L. (2012): The Triple Helix, Quadruple Helix, …, and an N-Tuple of Helices: Explanatory Models for Analyzing the Knowledge-Based Economy? in: *Journal of Knowledge Economy*, Volume 3, Issue 1, pp. 25-35. https://doi.org/10.1007/s13132-011-0049-4

OECD (2005): *Oslo Manual. Guidelines for Collecting and Interpreting Innovation Data*. 3rd edition. OECD, Paris.

Osterwalder, A., Pigneur, Y., Bernarda, G., Smith, A. (n.d.): Value Proposition Design. Wiley. strategyzer.com/vpd

Vargo, S. L., Lush R. F. (2014). *Service-dominat logic: Premises, Perspectives, Possibilities*. Cambridge University Press, 3-30. (e-book)

Vas, Zs. (2012): Tudásalapú gazdaság és társadalom kiteljesedése: A Triple Helix továbbgondolása - a Quadruple és Quintuple Helix. in: *Dialógus a regionális tudományról*. Széchenyi István Egyetem Regionális- és Gazdaságtudományi Doktori Iskola; Magyar Regionális Tudományi Társaság, Győr, Magyarország, pp. 198-206.

A LITERATURE REVIEW WITH A STRONG SYSTEMATIC ASPECT OF SCHOOL–UNIVERSITY PARTNERSHIPS

Csilla Pesti, Helena Kovacs, Judit Saád, Khin Khin Thant Sin, Deisi Yunga

ABSTRACT

This paper aims to, firstly, provide a literature review on school-university partnerships with a strong systematic aspect, and secondly, to present the learning that occurred among the research team members while collaborating in this pillar. The analysis of 49 relevant studies has revealed the homogenous nature of research on school-university partnerships by identifying a set of common characteristics in them. Our non-traditional methodology to review existing literature with a strong systematic aspect has also proved to be a viable approach to identify the characteristics of a researched field/topic, as well as to map out the gaps and the missing links.

Keywords: school-university partnership, levels of partnership, teacher preparation, empirical research

Introduction

In the frame of the School-University Partnership research, besides conducting small-scale and big-scale quantitative questionnaire inquiries, qualitative interviews and international case studies, the idea of conducting a systematic literature review on school-university partnerships arose. The methodology of systematic literature reviews and meta-analysis enjoys academic popularity at our Faculty: there are doctoral courses not only teaching the method but also planning PhD students' learning by applying it, there are crash-courses offered to faculty members. Moreover, an ongoing institutional project on teachers' continuous professional development titled Models of Teacher Learning (MoTeL)[14] draws a great deal on the methodology of systematic literature review, and the experiences gained in this project on establishing and coordinating such collaboration between team members in an online environment have led to the idea of channelling this practical knowledge into our project.

Conducting a systematic literature review is a resource-intensive endeavour. In many cases, the time required to conduct a rigorous systematic literature review is the deterrent factor that obstructs researchers to choose this method. Our team was aware of this (and other) bottleneck, yet we faced the challenge and embarked on a journey of conducting a systematic literature review, especially because of the following two reasons: firstly, we thought that even if the end product will not be based on the rigorous premises of the systematic literature review methodology, by following its step, i.e. by identifying relevant studies, analysing them, and writing up a synthesis will be, can be a valuable input for those interested in the topic; and secondly, this collaboration was also a learning opportunity for the participants to broaden their knowledge on the topic of school-university partnership, as well as to expand their methodological repertoire.

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[14] https://nevtud.ppk.elte.hu/

Firstly, this article provides a brief overview of existing literature (systematic and traditional) reviews on the topic of school-university partnership, which is followed by the state-of-art situation in the European context. After elaborating on the methodology, we move on the presenting and discussing the results.

1. School-university partnerships in the European context

A review of the ten most relevant documents developed by the institutions of the European Union offers a sense of where the topic of school-university partnership, and to that extent also any sort of educational partnership, stand. The analysis also incorporated slightly remote but nevertheless related aspects of partnerships for the development of educational practice in general and development of specific social areas, including referential literature on entrepreneurship, apprenticeship and development of democratic societies.

It is rather evident, from the selected literature, that there is a lack of recent cross-European evidence and documentation of practices related to school-university partnerships. Across the ten documents, referring to partnerships usually includes horizontal collaboration between schools (European Commission/EACEA/Eurydice, 2018) and/or with industrial representatives (European Commission/EACEA/Eurydice, 2016). In terms of schools, universities seem to be seen rather as providers of research and/or newly trained workers (teachers) than as exciting and beneficial partners. Furthermore, partnerships and exchanges are more supported at the level of school to school within national borders, but also beyond through support systems like Erasmus+ For Schools. On the other side, according to the literature, even from the perspective of higher education institutions partnerships with business sector seem to be a more lucrative endeavour that brings better skillsets and opportunities for development (Marinelli, Edwards & Mironov, 2017; Edwards, Marinelli, Arregui-Pabollet & Kempton, 2017). Collaboration with schools is oftentimes also seen through partnerships with the local community focused on regional/local development (Marinelli et al., 2017; Hartley & Huddleston, 2010).

Selected case studies show that there are certain limiting factors, particularly for universities, for instance "the national regulation of the structure and governance of universities does not provide the flexibility needed for the recruitment of university professors with different profiles and contract types" (Edwards et al., 2017, pp. 33-34). Also, much of the collaboration is "based on the individual motivation and engagement of professors than in a systematic and regulated manner. Moreover, these processes require different researchers' profiles to the general academic professor profile, which is interested in working in multi-stakeholder collaborative profile, applied research and closer to the policymaking cycle" (Edwards et al., 2017, p. 34). It is often remarked that even though they are challenging undertakings, "[p]artnerships are dynamic entities" (Hartley & Huddleston, 2010, p. 29) and as such, they evolve, decline and get reshaped by many different factors. Also, they have to be nourished and cultivated to truly serve the purpose which they have been developed for. Next to this, it is quite reliable to say that partnerships start with "two individuals who find they have common interest or concerns and decide to collaborate" (Hartley & Huddleston, 2010, p. 23). In successful and more complex collaborations, this basic beginning develops with responsibly involving other partners of interests and expanding to different stakeholders.

Nevertheless, there is an agreement that in certain domains and from the perspective of specific purposes, partnerships can be a game-changing factor. Hartley and Huddleston (2010) note that partnerships between schools, communities and universities can bring important advantages when it comes to developing sustainable democratic thinking. They point out that:

[s]uch multifaceted partnerships have the potential to considerably benefit everyone concerned. Communities can help universities to ground their academic work in everyday practical reality and make learning more relevant. […] Schools can provide physical facilities and equipment to community groups thus becoming sites for community activities. Universities can provide technical and research-based support for both schools and local communities in dealing with the issues facing them" (Hartley and Huddleston, 2010, p. 10).

However, it is emphasised that these relationships can be more complex, and in either type of design they require reciprocal respect instead of typical "one-way" or "top-down" models. This is an important element because in the interest of gaining the best results, "the unique contribution that particular kinds of organisations can bring to democracy-building" (Hartley & Huddleston, 2010, p. 21) need to be released and brought into the relationship. The contribution needs to be recognised and acknowledged. According to the literature, achieving this requires dialogue and understanding each partners' interests and needs. Council of Europe (2010) devised a table depicting levels of partnership, and while this particular example concerns education for democratic citizenship (EDC) the knowledge from this table applies to other topics of interest (Table 1.).

1. Table. Levels of partnership

Level of partnership	Types of activity	Example
Level 1: **Exchange**	Sharing information and/or materials	A group of university students approach several local school teachers about volunteering to read children after school
Level 2: **Dialogue**	Seeking to understand the interests and needs of each partner	The students invite faculty members who teach and conduct research on literacy to meet with the school teachers to learn more about the school and the community
Level 3: **Networking**	Formation of associations with shared interests	The teachers, school administrators and faculty begin to devise projects aimed at improving the literacy of the children and providing experiential education opportunities for university students through several service-learning courses
Level 4: **Collaboration**	Working together towards a common goal and, ideally, a common purpose	Over time, more teachers and faculty members begin to participate in meetings and additional projects emerge based on shared interests and goals
Level 5: **EDC partnering**	Partnerships that address social problems and build democracy	Over time the project widens as other groups (community organisations and parent groups) become involved in defining the agenda of the partnership. Participants begin to raise questions

		about the larger socio-political causes of literacy problems in the community. The coalition works together with information about these and begins to engage in collective action designed to amend public policy in this area.

Source: Hartley & Huddleston, 2010, pp. 22-23

Finally, Hartley and Huddleston (2010) note that effective partnership "requires careful attention to both structures (the development of organisational procedures, policies about how partnership makes decisions and will carry out its work) and group norms and dynamics (a shared understanding of why the group is together, shared goals, and the cultivation of openness and trust)" (Hartley & Huddleston, 2010, p. 29). This requires commitment and dedication from all parties involved, as well as regular target self-evolution.

When it comes to the development of entrepreneurship at educational institutions, "[s]pecific strategies feature a wider range of priority topics than broader strategies and more frequently include the key conditions needed to support implementation, i.e. a cross-ministerial approach, partnership and stakeholder engagement, and robust monitoring procedures" (European Commission/EACEA/Eurydice, 2016, p. 10). This shows that partnerships need to be established at different levels within the spectrum of educational stakeholders. Building partnerships is required at both ministerial levels and on the level of actors that implement policies. Additionally, when it is developed to enhance entrepreneurship partnerships between educational institutions come hand in hand with innovation. Yet, as noted before, in most of these cases the partnership is developed between an educational institution and an industry representative (European Commission/EACEA/Eurydice, 2016). Inevitably both entrepreneurship and innovation in education require strong partnerships, although the focus for both usually is not reflecting school-university partnerships but rather a collaboration with businesses and other institutions. One possible reason for it might be found in the fact that innovative and entrepreneurial ideas in dominant literature are not as frequently found at schools, nor they are dominant at teacher education departments at universities, hence they are rather connected to technological departments and fast-paced industries. The same goes in cases of apprenticeship where partnerships are vital link yet in most cases they are not done between universities and schools (Cedefop, 2017), unless for teacher practicum.

2. Methodology

As we outlined it in the introduction, in our endeavours to reveal the characteristics of school-university partnerships (SUP) we embarked on a path that was paved by the premises of the systematic literature review methodology, but due to the limitations we had to face our final work does not fall into the category of a rigorous systematic literature review. We tend to call it a literature review with a strong systematic aspect.

This study seeks to answer the following two research questions:

- What are the characteristics of school-university collaboration based on empirical research data?

- What evidence does the existing empirical research data provide on the different functions of university-business partnerships? (functions: learning of actors, research, school/university development, program improvement)

Besides working on the review of existing literature, this project also focused on the learning process of its members, therefore, to facilitate and support our work in an online environment, guidelines were prepared for each of the steps in the process (Figure 1.).
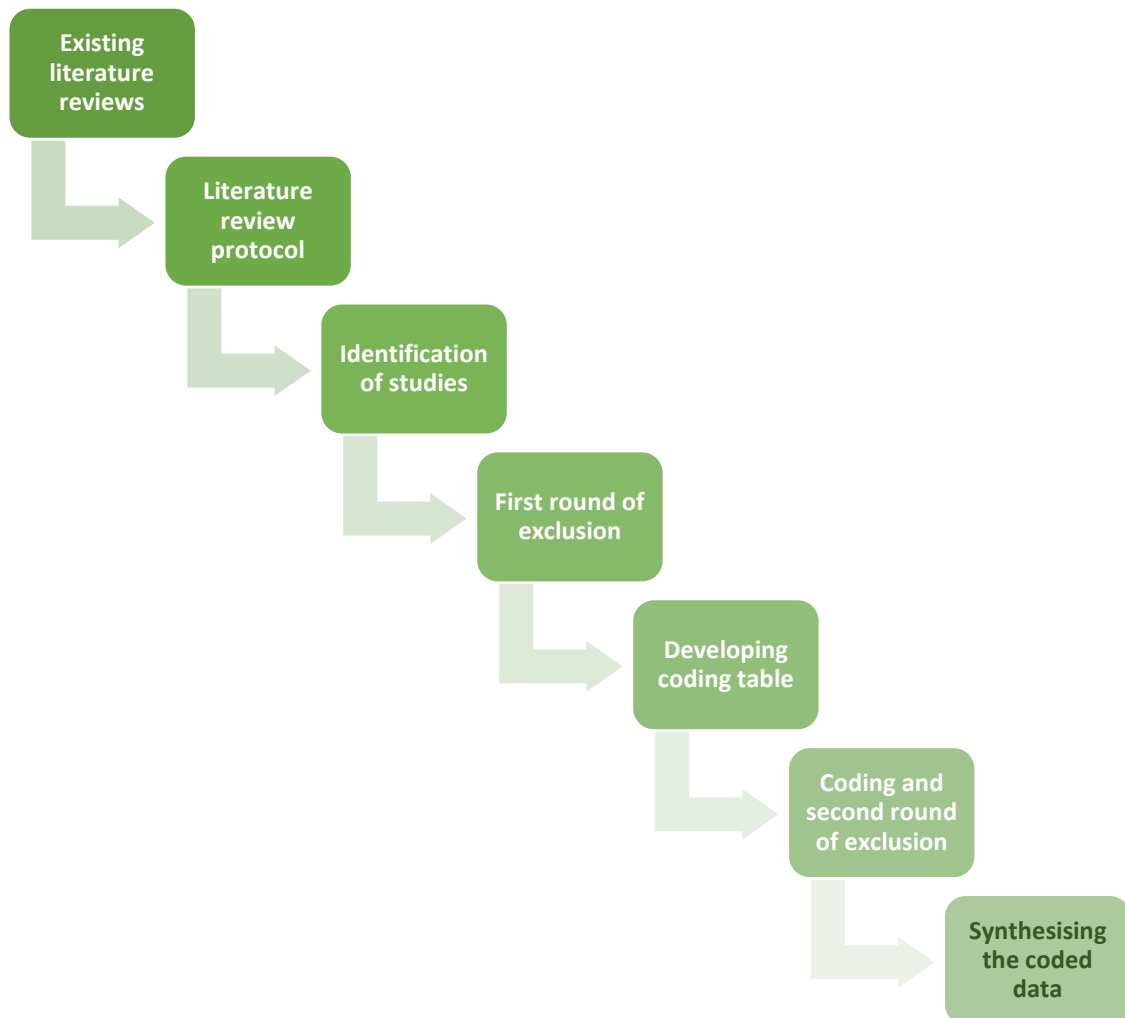
1. Figure. Research process

Firstly, we dwelled into existing literature reviews (traditional and systematic) on the topic of (and beyond) school-university partnerships. The identified studies were collected and reviewed (Appendix 1.), Chapter 1. of this report is mostly based on these.

This provided ground for the development of a protocol, or with other words a set of "rules" that we followed when identifying the studies, and deciding on their inclusion in or exclusion from further analysis (Appendix 2.). According to the protocol, we included English language publications published after 2009, with a limited geographical focus on Europe, the United States and Australia. This phase, besides the authors of this article, was supported by a team of experts. According to the research questions a set of descriptors, key terms[15] were defined (i.e. synonyms of key search terms), and the population was limited to publications that

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[15] Including the following: school, university, higher education, collaboration, partnership, cooperation, network, circle, community.

involve university/university staff and public schools (excluding early childhood education)/teachers (pre-service and in-service). The identification of the studies with the pre-defined search string took place in 4 platforms, databases: EBSCO, ERIC, Google Scholar, European Union documents.

Each researcher participating identified the studies in an assigned platform/database individually, therefore the unfiltered search resulted in 11.256 studies (EBSCO: 2.996; ERIC 6,726; Google Scholar: 1.452; EU and OECD documents: 82). The researchers used a reference manager software[16] to collaborate on collecting the identified studies at one place. From this point forward, the studies identified on EU and OECD platforms were handled separately, because due to these documents' nature, they were not suitable for further analysis in the same manner as the empirical studies. However, to preserve the valuable input from these documents, we reviewed them separately (Chapter 1. is based on it).

This was followed by the first round of exclusion when the duplicates (3.728) and studies with a date out of scope (958) were removed. The 6.488 studies that we were left at this point still exceeded our capacities, therefore we arrived at an expert decision: the publication time range was decreased, we selected studies not from 2009 but 2015 for further analysis. The population of studies included 4.028 publications that were eligible for further screening.

Arriving at this point, due to the time restrictions we arrived at another harsh decision: screening 4.028 studies based on their title and abstract to check whether they meet all the criteria defined in the protocol was not feasible within the given project time. Therefore, we agreed to give up the idea of conducting a rigorous systematic literature review, and, based on the initial screening of titles and abstracts, we chose 49 studies that were suitable for further analysis. Figure 2. is a graphical representation of the study identification process.
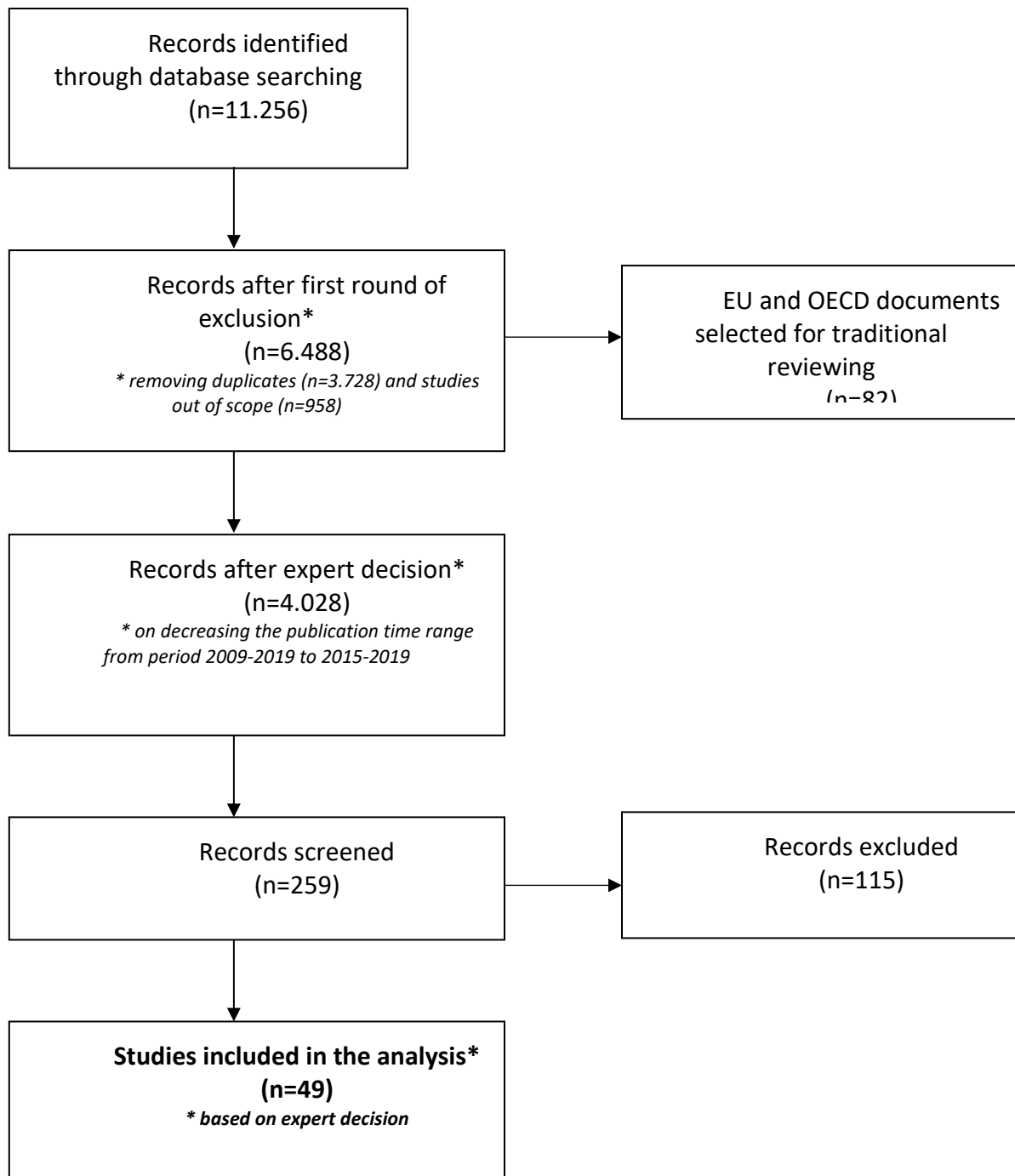
2. Figure. Study identification process

Simultaneously with the study identification, a code system was developed for later coding of the studies selected for further analysis (Appendix 3.). The code system consists of the following ten modules, each including further categories:

1. general information (including the authors, year of publication, title);
2. keywords (as defined by the authors);
3. study characteristics (including the geographical scope, type of publication, scope, school level);
4. research questions;
5. theoretical/analytical framework used in the studies;

6. the methodology used in the studies (including the sample, sample size, data collection, method of analysis);
7. activities of collaboration;
8. characteristics of collaboration (including the leader of the collaboration, whether it is formal or informal, involved actors, focus, description, whether it is linked to innovation);
9. findings;
10. limitations and impressions.

Having the code system developed and piloted, the team started coding the selected 49 studies. In the case of 10 studies, we conducted double coding, i.e. the studies were coded individually by two researchers. Since the level of consistency was proved to be high in all double-coded cases (above 85%), the remaining 39 studies were coded only by one coder.

The analysis was based on the coded data, i.e. the information extracted from the studies. In some instances, we quantified the data, while in some other cases we conducted a thematic analysis of the extracted information to identify emerging themes e.g. in research findings presented in the studies.

3. Results

3.1. General information on the selected articles (sample descriptives)

As we have demonstrated in the Methodology chapter, our sample consisted of 49 studies. Majority of the studies were published in 2017 and 2018, and have geographical focuses of the United States of America or Canada. Table 2. demonstrates a more elaborated the distribution of the studies along their geographical focus and year of publication.

2. Table. Distribution of the studies along their geographical focus and year of publication, count

		Year of publication					
		2015	**2016**	**2017**	**2018**	**2019**	**Total**
The geographical focus of the study	**United States of America, Canada**	6	6	6	5	1	24
	Europe	2	1	5	5	3	16
	Australia, New Zealand	1	2	4	2	0	9
	Total	9	9	15	12	4	49

Five studies report on research endeavours conducted in more countries, 11 studies on the national level, 12 studies on the regional level and 13 studies on settlement-level. 17 studies inquire SUP from the institutional perspectives, while 7 from the individual (teachers') point of view.

In 39 studies the coders could not extract the level of education (ISCED 1, 2 and/or 3), but looking at the remaining documents, no major difference can be observed (three articles focus on ISCED 1; two articles on ISCED 1 and 2; two articles on ISCED 2 and 3; three articles on INSCED 1, 2 and 3).

The majority of the studies (33) is based on a qualitative methodological approach, nine studies on mixed methods – the quantitative approach does not appear as a standalone approach at all, and the rest of the studies are not empirical.

3.2. Keywords in the studies

During coding, we extracted the keywords defined by the authors, grouped them, and counted their occurrence among all the keywords. We intended to demonstrate what keywords are mostly associated with studies on school-university partnerships (Figure 3.). The three phases of the teacher education continuum appeared among the keywords: while the keywords for induction and professional development are less associated with SUP, initial teacher education is the dominant key-phrase about such partnerships.
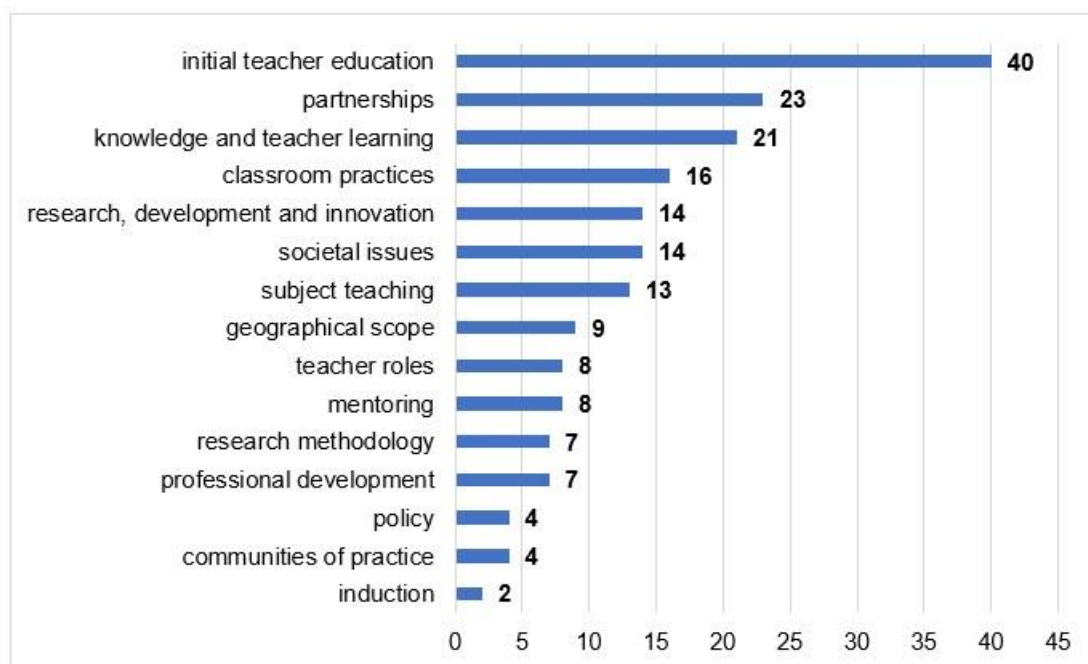
3. Figure. Keyword-groups associated with the articles on school-university partnerships, count (n=79)

3.3. Research questions in the studies

Eight of the studies did not include any explicit research question, and the coders could not deduce any from the research aims either. In the remaining 41 studies, 79 research questions were identified in total and extracted for further thematic analysis. We labelled each research question with its underlying theme (one label per research question), recorded whether it included explicit reference to SUP, and whether it was explicitly referring to the initial teacher education context.

The most frequent label for the research questions was the „teacher preparation" (21,5%), indicating that the research questions intend to reveal different aspects of teacher preparation (mostly in the context of initial teacher education). Moreover, an additional 6,3% of the research questions were labelled as „practicum". Another frequent label, „policy/program/project evaluation" was assigned to 20,3% of the research questions. While there were numerous other labels identified (Appendix 4.), only two of them had negative connotations: forced partnership (2,5%) and challenges/issues of SUP (3,8%).

About one third (25) of the studies' research questions had explicit reference to SUP – these are the studies that considered school-university partnership as their main theme, while most of the other studies just had mentions of SUP (to a different extent) as a factor/component/etc. of e.g. initial teacher education or school development.

37 out of the 79 analysed research questions had explicit reference to initial teacher education.

3.4. Characteristics of partnerships

We extracted information on the characteristics of the school-university partnerships as reported on in the studies. In many instances, the characteristics we looked for were not explicit and were assigned with the code "no information on it".

We tried to identify who can be considered as the leader of the partnership. Unfortunately, this was not clearly stated in the majority of the studies (77,6%), but in four studies the authors reported on the university being the leader, while seven studies had explicit mentions of joint leadership. Schools did not appear in any of the analysed studies in a leading role of the SUP.

Having a look at the nature of the partnerships, the majority of studies (87,8%) focus on formal partnerships where the partners have a formal agreement on their collaboration. Six studies did not identify the nature of the partnerships, and no studies dealt with the informal type of partnerships between schools and universities.

With four categories in the code system that emerged from previous research (Halász, 2016) we tried to grasp what is the focus of school-university partnerships. As Figure 4. demonstrates, more than half of the studies focus on SUP in the context of initial teacher education (55,7%), and around a quarter of the studies interprets it in the continuous professional development context (22,4%). Significantly fewer studies step beyond the teacher learning rationale of SUP: 10,2% of the studies identify the school development dimension, and 16,3% the research dimension. Moreover, the authors link the partnership to innovation in only 12,3% of the articles.
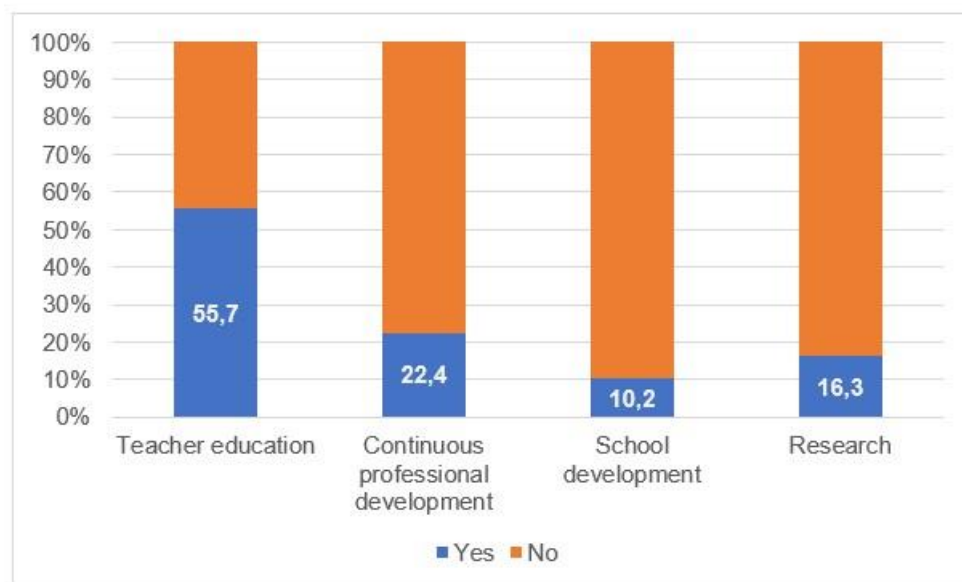
4. Figure. The focus of the partnership based on the research questions, % (n=79)

3.5. Activities of partnerships in the studies

26 of the studies did not refer to any activities of partnerships explicitly, and the coders could not deduce any from the text either. In the remaining 23 studies, 57 activities were extracted in total and used in further thematic analysis.

Firstly, we tried to reveal whether the four focus points of partnerships (teacher education, continuous professional development, school development and research) could be grasped in the activities, and, in case yes, whether they show a similar pattern than in the case of the research questions (in Chapter 3.4.). Our data has revealed (Figure 5.) that on the level of activities in the dominant focus point is initial teacher education (49,1%), and, similarly to the pattern based on the study research questions' focus, the research dimension is the third in line by 12,3%. However, the dimension of continuous professional development and school development swapped proportions: school development (19,3%) seems to be easier to grasp in activities than continuous professional development (10,5%).
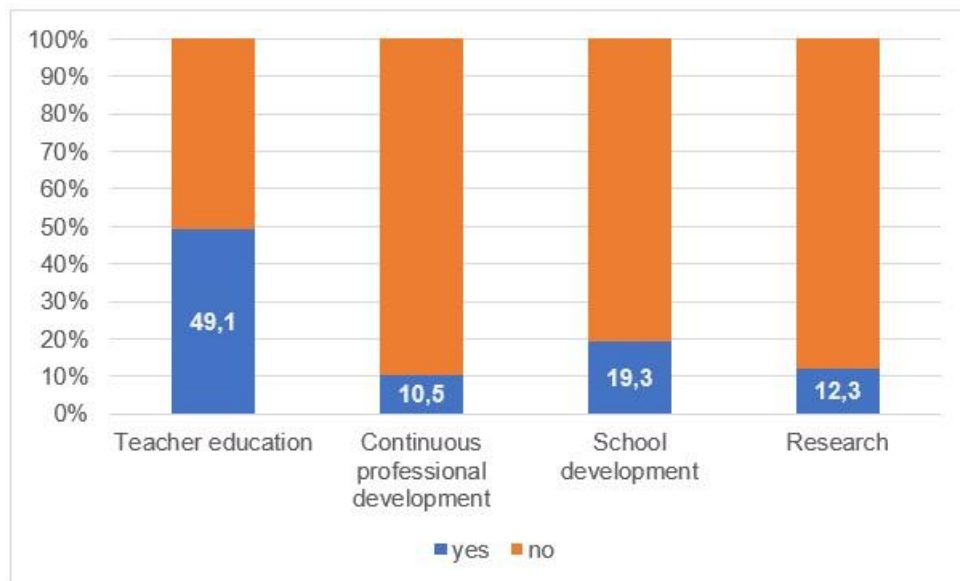

5. Figure. The focus of the partnership based on the activities, % (n=57)

Conclusions

Our intention with this paper was two-folded: firstly, to provide a literature review on school-university partnerships with a strong systematic aspect, and, secondly, to present the learning that occurred among the research team members while collaborating in this pillar. Our endeavours were framed by the EDiTE School-University Partnership project (first pillar), and they took place between March and August 2019.

The initial idea of conducting a systematic literature review arose after the launch of the project, and although it had grown out to be the fourth pillar beside the original three (quantitative pillar, qualitative pillar, pillar of international case studies), we were aware of the challenges of conducting such review due to its resource-intensive nature. Despite this, we decided to commence, mostly because we thought that even if the end product would not be based on the rigorous premises of the systematic literature review methodology, by following this step, i.e. by identifying relevant studies, analysing them, and writing up a synthesis will be, can be a valuable input for those interested in the topic. Moreover, this collaboration was also a learning opportunity for the participants to broaden their knowledge on the school-university partnership, as well as to expand their methodological repertoire.

Adhering to the premises of the systematic literature review methodology led us at somewhat harsh expert decisions to define the sample of studies suitable for further analysis, but throughout the process, we (the authors of this paper) had the support of an expert team, and maintained good scientific practice by continuous discussion, reflection and reporting on the methodological considerations and the research process.

After databases searches, criteria-based exclusions, abstract screenings and expert decisions, 49 studies were selected for further analysis, with a geographical focus on Europe, North America, Australia and New Zealand. Having the studies coded in a code system, we could extract information on eg. various study characteristics, methodological considerations of the studies, partnership-specific features and general findings.

Our data has revealed a set of „common" characteristics of research projects/papers on school-university partnership from the past five years:

- most of them have rather a national (or lower)-level geographical focus than international;

- they tend to argue more from an institutional perspective than from an individual perspective;

- the qualitative approach is the dominant one;

- they interpret school-university partnerships mostly in the context of initial teacher education and the practicum;

- there is a tendency to neglect the „what did not work" aspect of the partnerships;

- the researched partnerships are mostly formal (there is a formal agreement).

Although our sample is based on a series of expert decisions and cannot be considered representative, our results question the homogenous nature of research on school-university partnerships – especially because international discourse has turned away from the consideration of universities as the holders of knowledge; we rather interpret partnership as „platforms characterized by cooperative creation and sense-making" (Halász, 2016, p. 7).

Our non-traditional methodology to review existing literature with a strong systematic aspect has proved to be a viable approach to identify the characteristics of a researched field/topic, as well as to map out the gaps and the missing links.

References

Cedefop (2017). *Apprenticeship review: Italy. Building educational and training opportunities through apprenticeships*. Luxembourg: Publications Office of the European Union.

Edwards J., Marinelli E., Arregui-Pabollet E. and Kempton L. (2017). *Higher education for smart Specialisation: Towards strategic partnerships for innovation*. Luxembourg: Publications Office of the European Union.

European Commission/EACEA/Eurydice (2016). *Entrepreneurship education at school in Europe. Eurydice Report*. Luxembourg: Publications Office of the European Union.

European Commission/EACEA/Eurydice (2018). *Teaching careers in Europe: Access, progression and support. Eurydice Report*. Luxembourg: Publications Office of the European Union.

Halász, G. (2016). *School-university partnerships for effective teacher learning*. Issues Paper for the seminar co-hosted by ELTE Doctoral School of Education and Miskolc-Hejőkeresztúr KIP Regional Methodological Centre. https://ppk.elte.hu/file/may_13_issues_paper.pdf

Hartley, M. & Huddleston, T. (2010). *School-community-university partnerships for a sustainable democracy: Education for democratic citizenship in Europe and the United States of America*.

Marinelli, E., Edwards, J. & Mironov, C. (2017). *Higher education for smart specialisation: The case of North East Romania*. Luxembourg: Publications Office of the European Union.

A QUANTITATIVE INQUIRY INTO SCHOOL-UNIVERSITY PARTNERSHIPS IN INTERNATIONAL AND HUNGARIAN CONTEXTS

Csilla Pesti, Deisi Yunga, Judit Saád

ABSTRACT

The authors of this paper have embarked on a two-folded quantitative inquiry into the benefits, challenges and sustainability of school-university partnerships. On the one hand, we had the intention to explore the knowledge created by the project participants within the 3 years of EDiTE in a broader, international context, while on the other hand, we also aimed to unfold the present-day situation of partnerships within a narrower, national context of Hungary. Results revealed that participant consider such collaborations as beneficial, emphasising the importance of mutual learning, knowledge-sharing and knowledge-creating, but for some reasons in everyday practice, the well-known gap between theory and practice leaves its footprint on school-university partnerships too.

Keywords: school-university partnership, quantitative research, mutual knowledge sharing, perceived benefits, limitations

Introduction

The ELTE team supported by the consortium, decided to delve more deeply into the rich and complex world of theoretical research and practitioners' everyday practices-interface and conduct a research on the specificities of school-university partnership to gain a deeper understanding on the nature of this specific partnership within the EDiTE project and in the hope of providing useful hindsight into the "operationability" and sustainability of such endeavours. Firstly, a small-scale quantitative inquiry was conducted among the project participants, the results are presented in Section 3 of this paper. Besides this, another quantitative inquiry was foreseen to broaden the scope to the national contexts of the EDiTE partner universities. Chapter 4 of this paper presents the results of a quantitative survey focusing on the Hungarian context.

1. Literature review

1.1. Definition of school-university partnership

To improve education and connect theory, practice, and current research, various types of partnerships have been formed. These include informal and formal partnerships between schools, universities, NGOs (Non-Governmental Organizations) and industries. The goals of such partnerships include the improvement of the quality of education and learner outcomes, research, community development, etc. As emphasised by Darling-Hammond's work in 2010,

transforming teaching through "state-of-the-art practices" is especially vital for communities where students in their schools are underserved or marginalised.

The definition of a school-university partnership is broad. Generally, it is a mutual relationship aimed at improving the quality of teaching and learning through bridging of theory and practice among the school teachers, teacher educators and researchers doing academic research for supporting teacher practice (Stephens & Boldt, 2004). Examples include the professional development school (PDS) movement in the USA and the partnership between higher education institutions and schools for initial teacher education in England (Foust & Goslee, 2014). The definition of the partnerships is outlined in Halász (2016) as the "...deliberately designed, collaborative arrangements between different institutions, working together to advance self-interest and solve common problems" and also as "a structured approach in which institutions plan a common approach and deliver a program of work to meet agreed objectives" (p. 10). On the same note, Handscomb, Gu and Varley (2014) assert that the partnership may be broad as to work with several communities; or specific like working only in one faculty and school where it is intended for professional development, collaborative research and consultancy. Since both teacher's learning and professionalism involve the acquisition of knowledge, the latter calls not only for classroom learning in tertiary institutions, but also professional practice tailored to meet the tacit, procedural and contextual demands of the current education systems. For these partnerships to work, they should be engaged in all phases of teacher education (initial teacher education, induction and continuous professional development) (Taylor, 2008).

1.2. The rationale behind the partnerships

Two major needs exist according to Halász (2016) for educational partnerships; one is the need for research, innovation, and development. A second need is for professional development or continued teacher learning. However, Cochran-Smith (2005) contends that the partnerships are formed due to the increased focus on school reform as well as the need for better student outcomes by using the powerful lever of higher institutions. Particularly in Britain though, McLaughlin and Black-Hawkins (2007) found that partnerships have grown out of being a solution to the problem of true practicality of the implementation of educational research. This "gap between practitioners and the researchers" is seen as a flaw that partnerships hope to repair.

Another pragmatic reason behind the accelerating focus and energy towards the partnership is the changing role of higher education institutions, especially tertiary training institutions and universities given the technological advancements, globalisation and changes in the economy. Levin (2004) asserts that these institutions should "modify their operations in response to globalisation, information technology, pressures for innovation, and changing views of human development" if the theory is to produce effective teachers that will meet the needs of the 21st-century children and produce the best student outcomes. As such, universities are no longer viewed as a one-off training venue but as a facility for lifelong learning incorporating educators, teachers and academic researchers for the reconceptualisation and transformation of education. Additionally, as the consensus that such partnerships foster instructional improvements, tacit and procedural knowledge, more innovative partnerships have been gradually established (Borko, 2004).

1.3. Partnership development and stakeholder's interaction

While developing a partnership, the amount and levels of interactions between all stakeholders have a considerable significance on the outcomes of the program. In most partnerships, the

interactions are defined through a joint consensus reached between the partners depending on the type and form of partnerships; however, power relations and other unforeseen elements can affect the nature of the communication, interactions and overall development of the partnership. How the staff from both institutions interact is a decisive element of the partnership because it determines the level of shared commitment, unity, respect and trust among the involved personnel (Halász, 2016). Furthermore, it is necessary that both the school and the university assess the nature of the partnership, programs involved, expectations, resources available and expected outcomes so that the most appropriate level of interaction can be allocated for mutual realization of the partnership objectives (Snow, Flynn, Whisenand & Mohr, 2016).

1.4. Types of partnerships

Myriad configurations of the partnership model exist in the current educational climate. For example, several forms of school-university partnerships are described by McLaughlin and Black-Hawkins (2007). One uses two institutions who agree to a long-term contract where there is an agreed-upon equitable sharing of resources. Another model highlighted is a service partnership where the university provides support and training for their staff or teacher educators working within the schools. The school itself, which acts the data collection site, is given the freedom to select the research agendas (Nandan, 2010). Another form is a complementary type partnership where both institutions have their agendas, and these are implemented in a parallel manner. In such relationships, the schools assist the universities to meet their own initiated research agendas while they get assistance in their own agendas as well as facilities for research and further learning (Bebas, 2016).

The type of configuration, which dates back to the 1980s, has been established as one of the most widespread forms of partnership, and it can be in the form of the consultation model or the one-to-one collaboration model (Ng & Chan, 2012). In this form, the demands and needs of each institution vary in order and hence have to be negotiated and debated to reach a certain degree of mutuality (McLaughlin & Black-Hawkins, 2007). Although it has been proven to bring about positive change, its success depends on the collective efforts of all participants, including the funding agencies (Ng & Chan, 2012).

1.5. Benefits

School-university partnerships have several benefits, as evidenced by several empirical studies. For instance, Ng and Chan (2012) cite benefits such as "reciprocal development of schools and teacher education departments; improved learning opportunities for participants and their students; increased relevance of educational research; and reduced isolation for teachers and academics" (p. 38). Through experiential learning, faculty members from institutions involved have been found to advance significantly in their critical thinking capacities and problem-solving skills (Jensen, Mattheis & Loyle, 2013).

The partnerships support mutual knowledge sharing and learning between the schools, universities and partner organisations. Partnerships make mutual learning possible through the sharing of resources and facilities, support systems and constructive feedback among the participants. Mutual learning has been shown to support transformative changes and learning, especially in the leadership aspect where teachers were able to assume more leadership functions facilitating autonomy and efficacy (Carpenter & Sherretz, 2012).

The partnerships also enhanced horizontal and cross-national knowledge sharing when staff on similar and different professional levels re-interact, respectively. Knowledge sharing among the partners leads to distributed cognition, decision making and sharing of ideas which was said to bring about positive mentoring experiences, academic freedom and autonomy (Al-

Kurdi, El-Haddadeh, & Eldabi, 2018). Wood (2007), supports this finding as he reports that knowledge sharing is more likely to improve outcomes by allowing a re-imagination and re-configuration of the school culture and environment as a fruitful field research site. Furthermore, knowledge sharing has enhanced skills of teachers in aspects of time management, preparedness, depth of integration and reflection, and the ability to teach multicultural at-risk children (Snow et al., 2016).

1.6. Challenges

Despite the benefits of school-university partnerships, there are instances where it has been remarkably difficult to sustain such partnerships. Regardless of whether it is a short term or long-term arrangement, partnerships are faced with several challenges.

One huge obstacle is an issue with the language barrier. Communication skills vary among the participants in international projects, and cultural and linguistic diversity issues can arise. Thomas (2012) found that the varying levels of communication skills among participants, even though they all are categorized as "educator," causes miscommunication that impacts the durability of the partnership. Even more severe, these languages barriers were impeding progress when the researchers had to shift language used to connect their findings to colleagues at the partnering school (Campbell, Pollock, Briscoe, Carr-Harris & Tuters, 2017)

Secondly, school-university partnerships are affected by the different perspectives or approaches undertaken by participant institutions. As McLaughlin and Black-Hawkins (2004) emphasised, sharing common understandings and values is important as is acknowledging and respecting differences in perspectives. A significant challenge to be watched during the creation and execution of such a partnership is the various motivation levels among teacher participants. Overlook, lack of incentive, lack of acceptance/understanding of the partnership can influence both the social and environmental factors, which can dramatically impact teacher behaviour.

Similarly, due to challenges in complexity in partnerships, having functional structures that accommodate the needs of both partners can be challenging. Ng and Chan (2012) relate this to the absence of effective school-university communication and the lack of a shared vision between partners. As a result, mentors develop a narrow conception of mentoring as merely providing feedback and technical support, which undermines the program objectives and adversely affects the expected outcomes (Lai, 2010).

Also, insufficient expert knowledge has been found to hamper the effectiveness of the partnerships between schools and universities. Whereas universities may have dedicated trained staff, Campbell et al. (2017) note that not all of them may have advanced knowledge in all aspects of teacher training and teacher learning, and the necessary roles to be taken such as operational management as most of the university trainers have expertise in other subjects at their respective university. School teachers also may have insufficient knowledge to approach the tasks and activities outside their specialisation as noted by Van der Nest (2010) that involving teachers in training of different nature made the mastery of content a challenge. This is because, even as the teachers are being exposed to new content by the university research, they also have to learn how to teach (pedagogical content knowledge) and at the same time adapt to the changes (Childs & McNicholl, 2007).

Lastly, challenges are also encountered involving aspects of time management and availability. Van der Nest (2012) found that due to the inadequacy of teaching staff, most of the schools only assign a limited amount of time to the professional development partnerships which resulted in fewer meetings and interactions.

2. Our research

As the second pillar of the School-University Partnership Research Project17 conducted in the framework of the European Doctorate in Teacher Education (EDiTE)[18] programme at the Faculty of Education and Psychology of Eötvös Loránd University, we embarked on a two-folded quantitative inquiry into the benefits, challenges and sustainability of school-university partnerships. The research presented in this paper was conducted from January to August 2019. Our endeavours were two-folded, because, on the one hand, we had the intention to explore the knowledge created by the project participants within the 3 years of EDiTE (from March 2016 to February 2019) in a broader, international context, while on the other hand, we also aimed to unfold the present-day situation of school-university partnerships within a narrower, national context of Hungary.

In Section 3, the first study (EDiTE context) brings in some international perspectives, as it was conducted in 5 countries (Austria, Czech Republic, Hungary, Poland, Portugal), with the involvement of partner organization representatives, researchers, national project coordinators, supervisors and technical secretariats involved in the EDiTE project.

In Chapter 4, the second study (Hungarian context) focuses on Hungary, with the involvement of basic and secondary school representatives (ISCED levels 1, 2 and 3).

In Chapter 5, in accordance with the broader objectives of the School-University Partnership Research Project, we discuss the results along with the following:

- the characteristics of the partnerships between universities and other stakeholders, particularly schools, in the EDiTE programme and Hungary;
- the added values of school-university partnerships for all involved;
- the bottlenecks of collaboration in school-university partnerships (both individual and institutional constraints).

3. The first study (EDiTE context)

3.1. Context

This part describes the first a small-scale research among EDiTE participants including early stage researchers, (hereinafter ESRs) and self-funded researchers (hereinafter referred as SFRs), supervisors, national coordinators, partner organisations and technical secretariats in the form of an online questionnaire to reveal the benefits, limitations and other relevant cornerstones of school-university partnerships within the EDiTE project. Given the diverse and rich profile and experience of all involved within the EDiTE project, this research promised to yield valuable hindsight into the nature of this specific school-university partnership.

3.2. Methodology

As presented above, the first study involved the participants of the EDiTE programme from 5 countries (Austria, Czech Republic, Hungary, Poland, Portugal). According to the role of these participants, we could differentiate five sub-samples: partner organisation (PO) representatives, researchers, national project coordinators (NPC), supervisors and technical secretariats (TS). Table 1. demonstrates the composition of the sample.

Role of the participant in the EDiTE programme	Invited to participate	Participated	Participants' turnout
PO representatives	26	7	26,9%
researchers	23	8	34,8%
NPC	5	5	100,0%
supervisors	18	4	22,2%
TS	6	4	66,7%
all	**78**	**28**	**35,9%**

For data collection, a core questionnaire with 82 items (Appendix 1.) was developed, and in the frame of a pilot, it was tested with the support of an expert group consisting of university-based researchers, PhD students and practitioners. The questionnaire contained multiple types of closed-ended questions (multiple-choice, ranking, etc.) and some open-ended questions. The core questionnaire was modified and customised to the sub-samples. Data collection took place in January and February 2019.

We analysed the data in IBM SPSS Statistics 25. However, due to the small sample sizes, the repertoire of statistical tests was heavily limited; therefore our inquiry was restricted mostly to descriptive statistics, and in some cases, correlational analysis (Spearman R). Moreover, we decided to merge the sub-samples of NPC, supervisors and TS, therefore during the representation of the results and later on these three sub-samples constitute one sub-sample, referred to as university personnel.

3.3. Results

According to the respondents, the most common model of partnership between the universities and partner organisations is the structured model (50,0%), which is followed by the simple model (32,0%), and finally the intensive model (14,3%). One response (3,6%) indicated a blended model of simple and structured models.

Respondents were asked to assess the importance of and their gain through the benefits of school-university partnerships. A list of eight benefits was provided, and the respondents were expected to indicate their answers on a scale from 1 to 6. Figure 1. demonstrates the means of the answers for each benefit. According to the data, the most important benefits are "Supporting the doctoral students in acquiring practical experiences and realising the empirical part of their research" and "Supporting mutual knowledge sharing and learning between the universities and their partner organisations", while the benefit of "Improvement of the image of our university/organisation" seems to be the least important for the respondents. Figure 1. also reveals that although the respondents assigned fairly high importance to all of the indicated

benefits, according to their experience, the gain through these benefits is lower than the importance in every case. The biggest difference between the respondents' assigned importance and their experienced gain is in the case of "Supporting the transformative potential of teachers, schools and other partner organisations". Slightly less difference can be observed when it comes to benefits related to knowledge sharing (e.g. between POs or between POs and universities), and the least difference between the assigned importance and experienced gains is in the cases of benefits related to doctoral schools, doctoral studies.
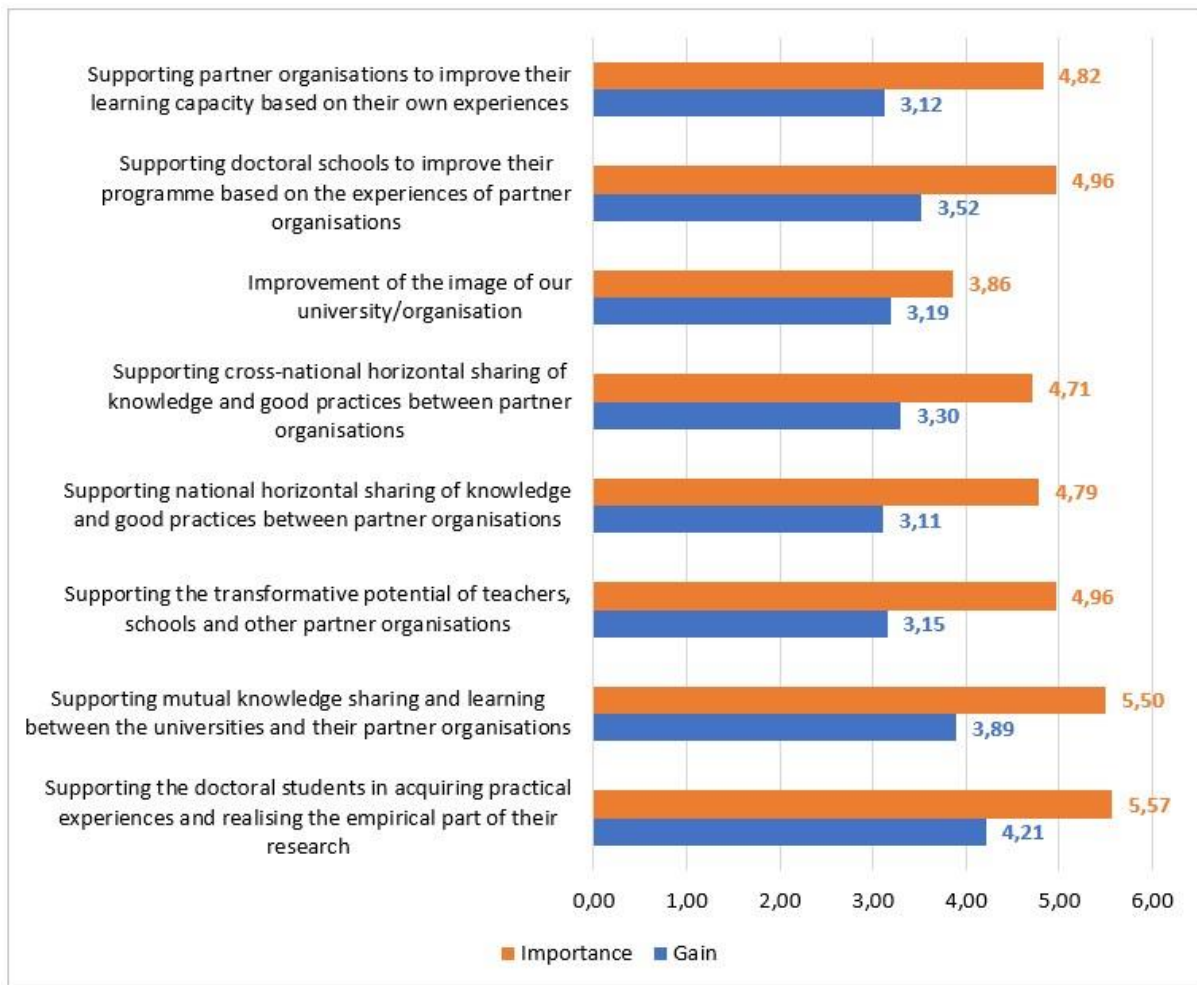
6. Figure. The importance of and gain through benefits of school-university partnerships (means, n=28), Question 5. and Question 6: In your opinion, how important are the following benefits of school-university partnership cooperation in general? How much have you gained through these? (Appendix 1.)

To have a more sophisticated picture on the limitations of school-university partnerships, we asked the respondents to rank nine pre-defined limitations according to their importance (assign a value from 1 to 9 to each statement). Figure 2. represents the means calculated for each of the pre-defined limitation statements in case of the whole sample, as well as of the sub-samples. The limited time-availability seems to be the most crucial limitation (mean=5,79) on the whole sample, and although this limitation was ranked as one of the most important ones among all the three sub-samples, the university-based staff seems to experience it as the most restricting factor (mean=6,69). In the second line of limitations, four items can be observed: lack of relevant conception of cooperation (mean=4,86), administrative/organisational demands (mean=4,71), differing perspectives or approaches (mean=4,07), lack of motivation (mean=4,07). The third group of limitations include items such

as inadequate language skills (mean=3,54), the lack of development programme or concept at the national level (mean=3,39), or the lack of sense of external relationships (third mission) within the higher education institutions (mean=3,25). Moreover, the least important limitation, according to the respondents in school-university partnerships is the insufficient expert knowledge (mean=2,32).
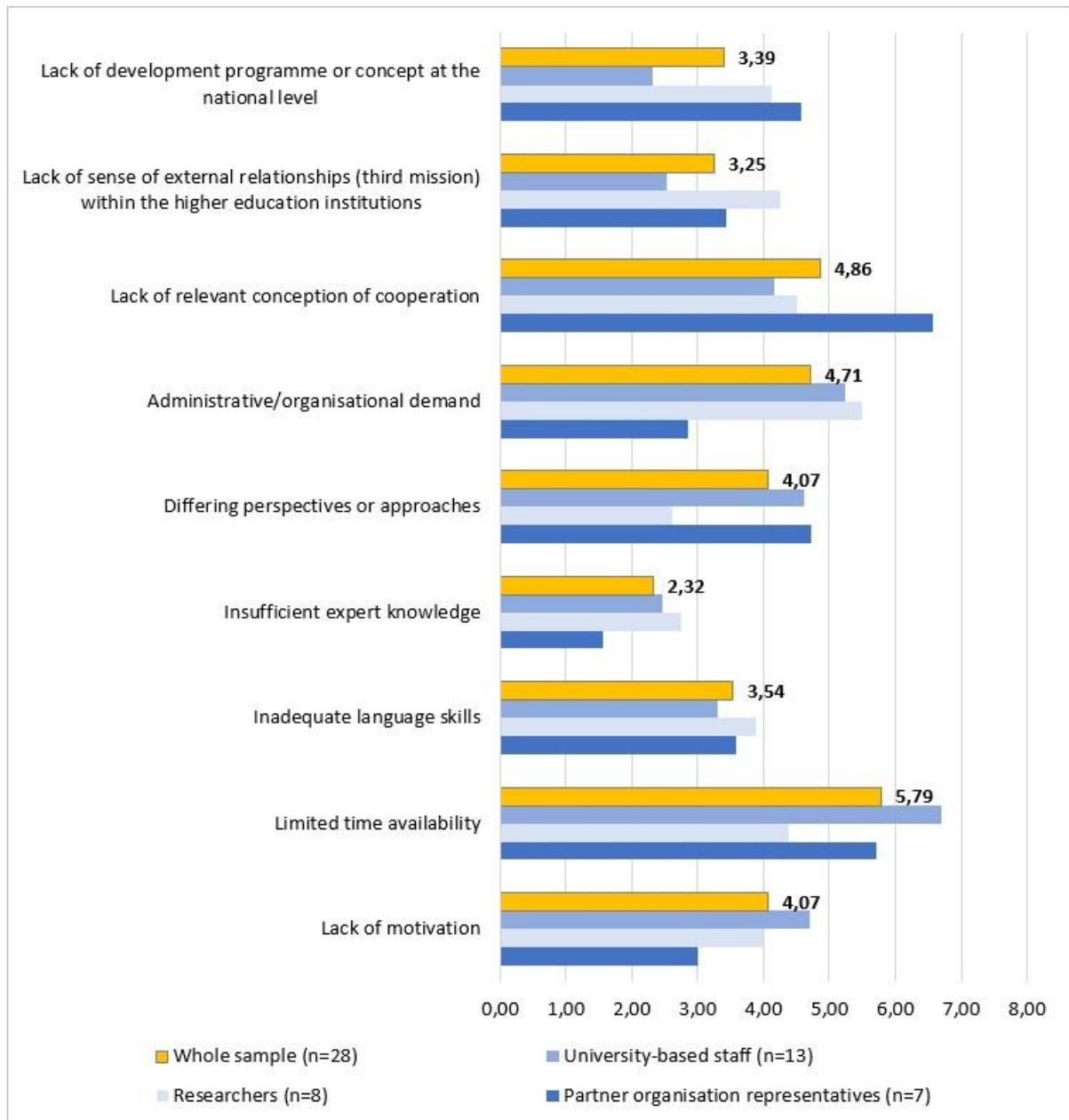
7. Figure. Limitations of the school-university partnership (means, n=28), Question 12: In your opinion, what are the limitations of school-university partnership cooperation in general? (Appendix 1.)

Another question inquired about whether the involvement of respondents in the partnership has changed during the EDiTE project. Figure 3. demonstrates that although in case of our sample the nature or intensity of the involvement has not changed (57,1%), or the respondents became more involved (25,0%), we can observe a difference in the researchers' sub-sample revealing that they became less involved in the partnership during the project (37,5%).
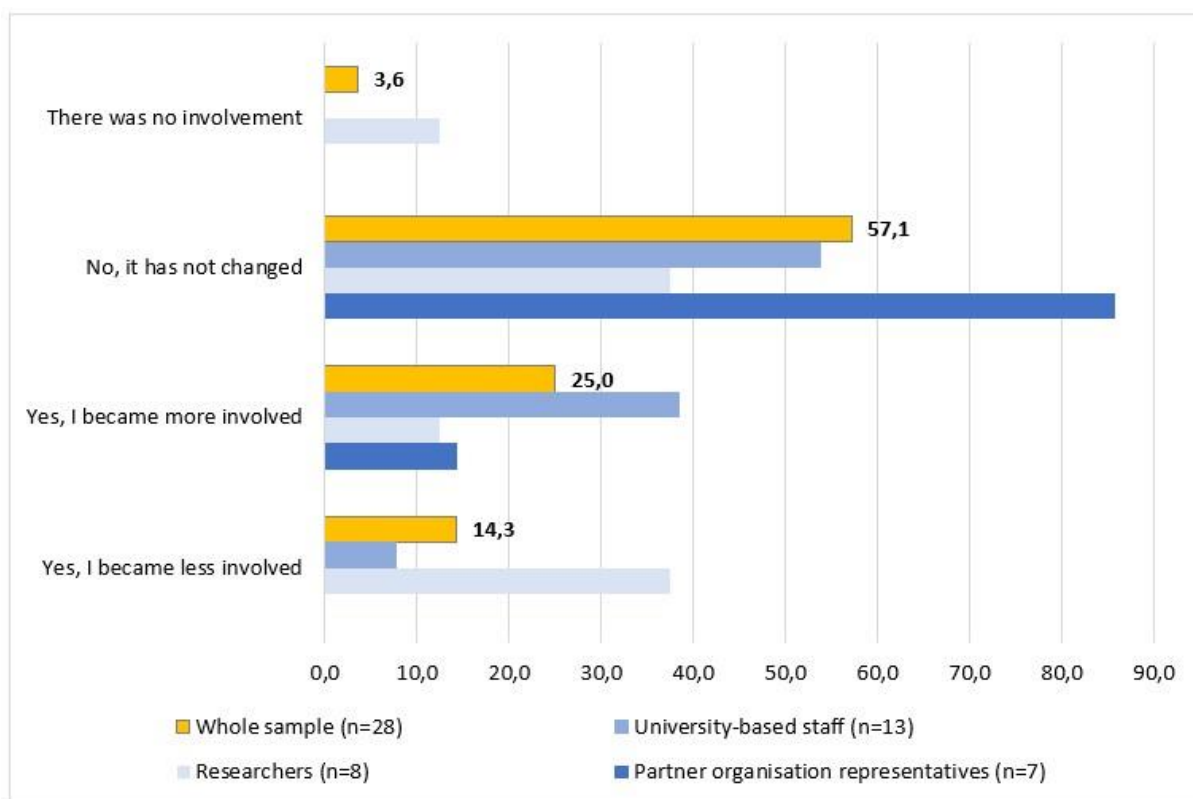
8. Figure. The change of respondents' involvement in the school-university partnership during the project lifetime (%, n=28), Question 15: Has your involvement changed during the project lifetime? (Appendix 1.)

The respondents were also asked to rate the impact of various agents had on the school-university collaboration during the three years of EDiTE. According to the data, a partnership was mostly influenced by the heads of the partner organisations (mean=4,81) and the researchers (mean=4,61). The national project coordinators (mean=4,11) and the staff working at the partner organisation (mean=3,96) had slightly less impact. The national representatives of the partner organisations (mean=3,37), university administration (mean=3,19) and university teachers (mean=3,04) seemed to have the least effect on the impact.

The respondents would generally recommend the participation in a similar partnership programme to another university, researcher, or organisation like theirs (on a scale from 1 – not recommend at all to 10 – most definitely recommend the statistical mean is 8,00; std. deviation=1,84). Figure 4. shows that although all the three sub-samples lean towards recommending it, the group of university-based staff including national coordinators, supervisors and technical secretariats are most in favour of doing so. This result resonates with the data from another question asking the respondents to scale their satisfaction with the school-university partnership in the EDiTE project. In general, the mean of satisfaction (on a scale from 1 to 10) was 6,33, but if we look into the sub-samples, a similar pattern to that on Figure 4. emerges: university-based personnel were the most satisfied (mean=7,15), followed by the sub-sample of researchers (mean=5,86), and PO representatives (mean=5,29).
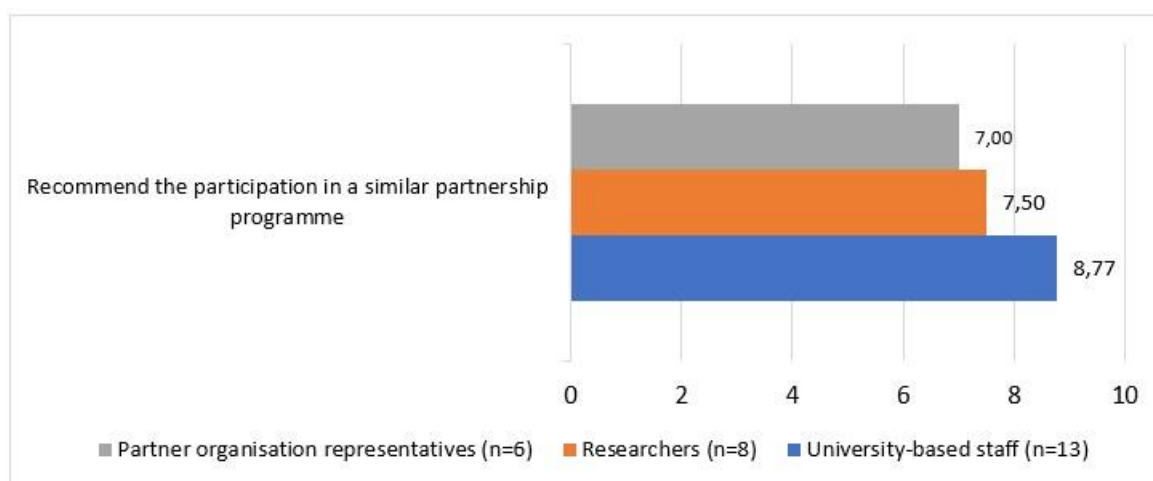
9. Figure. Whether the respondents recommend participation in a similar partnership programme (means, n=27), Question 11: Would you recommend the participation in a similar partnership programme to another organisation like yours? (Appendix 1.)

4. The second study (Hungarian context)

4.1. Context

As mentioned earlier, within the EDiTE project, we had the opportunity to delve more deeply into the topic of school-university partnership. The ELTE team designed a second round of questionnaires for schools and teacher education institutions. The focus of the second round of the survey was the national contexts. The ELTE team offered the developed survey tool to the consortium partners and conducted its research within the Hungarian national context.

The questionnaires were sent to 2910 schools of which 472 has responded. After filtering those respondents that answered negatively about the existence of partnership with universities, 306 institutions remained in the sample.

In the following part, the research methodology and the results will be presented.

4.2. Methodology

The second study aimed to reveal the state-of-art situation of school-university partnerships in the Hungarian context. We invited school representatives (ISCED level 1, 2 and 3) and representatives of teacher education centres to fill in an online questionnaire. However, due to the small number of respondents from the representatives of teacher education centres, this report does not cover their answers. Table 2. demonstrates the composition of the sample.

4. Table. Turnout of participants

Role of the participant in the EDiTE programme	Invited to participate	Participated	Participants' turnout
school representatives	2.910	472	16,8%

Similarly to the first study, for data collection, a core questionnaire with 33 items (Appendix 2.) was developed. In the frame of a pilot, the questionnaire was tested with the support of an expert group consisting of university-based researchers, PhD students and practitioners. The questionnaire contained multiple types of closed-ended questions (multiple-

choice, ranking, etc.) and some open-ended questions, and most of the questions were based on those in the first study. Data collection took place in June and July 2019.

Although we received the answers from 9 representatives of teacher education centres, too, due to the small sample, hereby we focus on the answers provided by the school representatives; therefore, they constitute the sample.

We analysed the data in IBM SPSS Statistics 25. However, due to the small sample size, the repertoire of statistical tests was heavily limited; therefore our inquiry was restricted mostly to descriptive statistics, and in some cases, correlational analysis (Spearman R).

4.3. Results

According to the responses, 64,8% (n=306) of the educational institutions maintain cooperation agreements with universities of the total of 472 that were sampled. The institutions with the highest representation are those belonging to basic school (ISCED 1 and 2) and grammar school (ISCED 2 and 3), while integrated school (basic and grammar school as one institution), vocational secondary education and others (that do not belong to the previous categories) have a marginal presence in cooperation agreements (Figure 5.).
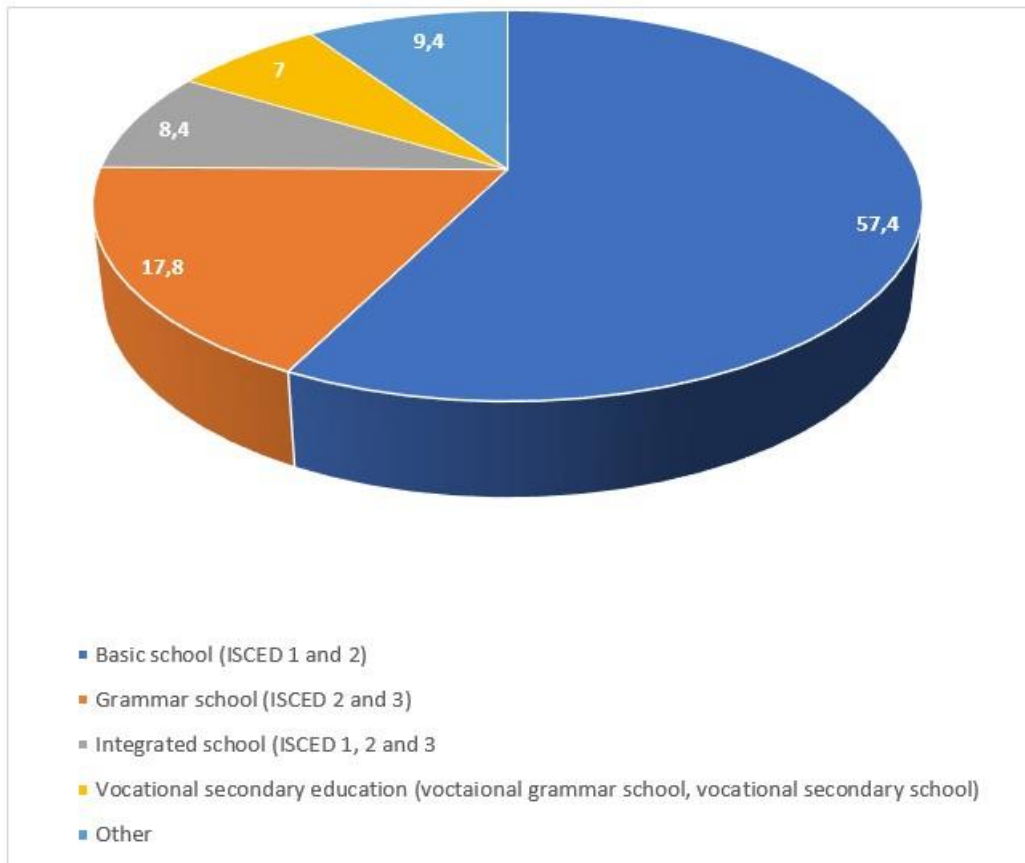
10. Figure. Distribution of respondents by institutional type (%), Question 3: What type of education is your institution responsible for? (Appendix 2.)

The location of educational institutions shows that there is a greater concentration in Budapest, Pest, Borsod-Abaúj-Zemplén and Baranya. In Budapest, 37,5% belong to the basic school, 26,8% are grammar schools, 16,1% are integrated schools, 3,6% are vocational secondary education institutions, and 16,1% are institutions that do not belong to the previous typologies (Figure 6.).
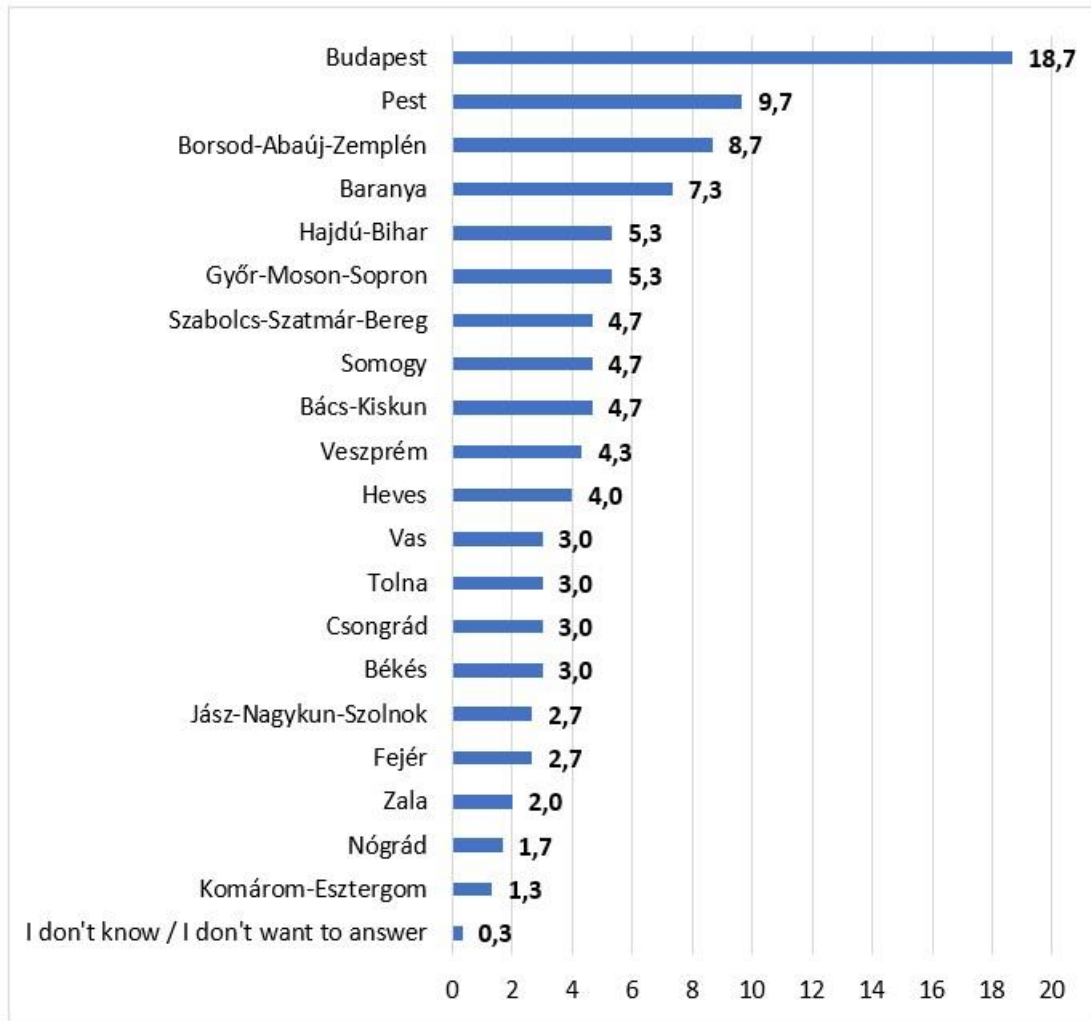
11. Figure. Distribution of respondents by county location (%), Question 2: In which county is your institution? (Appendix 2.)

4.3.1. The most important characteristics of school–university partnership

The participants were asked to think of one particular partnership they have with universities and mark their agreement with a pre-defined list of statements related to the benefits of the partnership. Figure 7. shows the statements and the answers among school types.
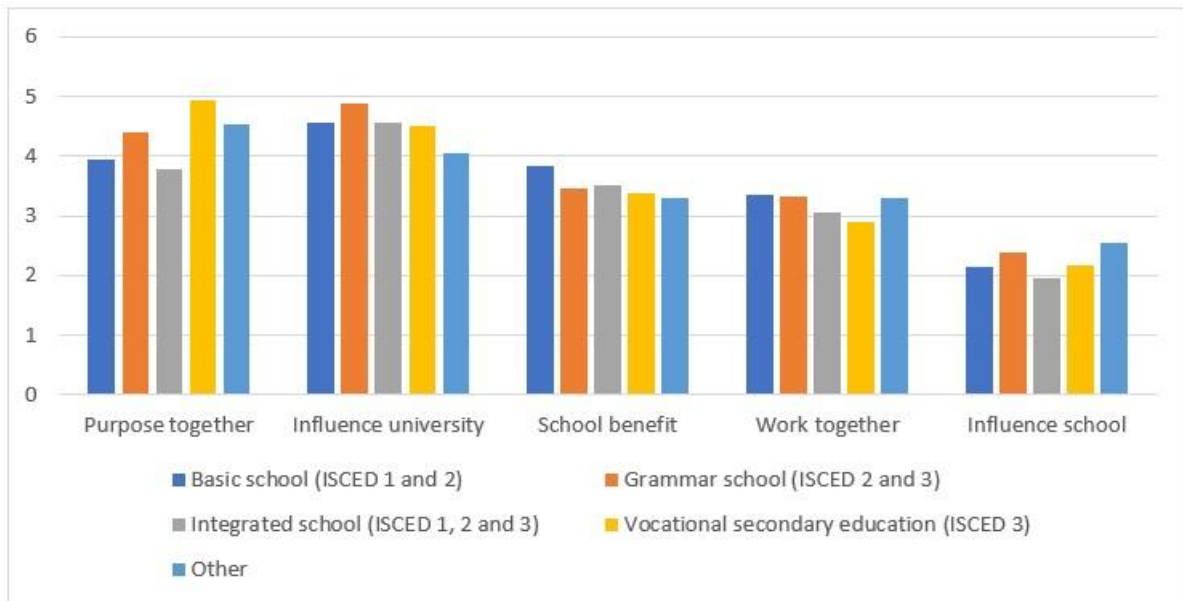
12. Figure. Benefits of the partnership, Question 8: For the following set of questions please think of one particular partnership your school has with a university. On a scale from 1 to 6, how much do you agree with these statements? (Appendix 2.)

As can be seen from the figure, the most agreed on the statement was that the purpose of the partnership was identified in a joint manner between the school and the university. The least agreed statement was that the school influenced the practice of the university. It is interesting to see that although the purpose of the partnership was jointly decided, participants agreed to a lesser extent with the statement that "The school staff and the university staff worked closely together for a common purpose". There were no major differences based on school types among the respondents.

Further analysis of the answers showed that 32,1% of the institutions strongly believe that the purpose of the partnership was set jointly. However, there is a 12,2% that states that the agreements were designed only by one of the parties. The perception of the institutions is *lining towards the belief* that one of the actors had greater relevance in the design of cooperation, as evidenced by 48,8% of the institutions.

It is also possible to identify a relationship between the joint work of educational institutions and universities and the fact that the staff of both institutions are working closely for a common purpose (Chi square=196,902; p≤0.01).

Figure 8. shows that educational institutions consider that universities have been able to influence schools more as evidenced by 70,2% of the institutions that scored above 3 on the scale to the statement "Our school has benefited from the partnership with the university".
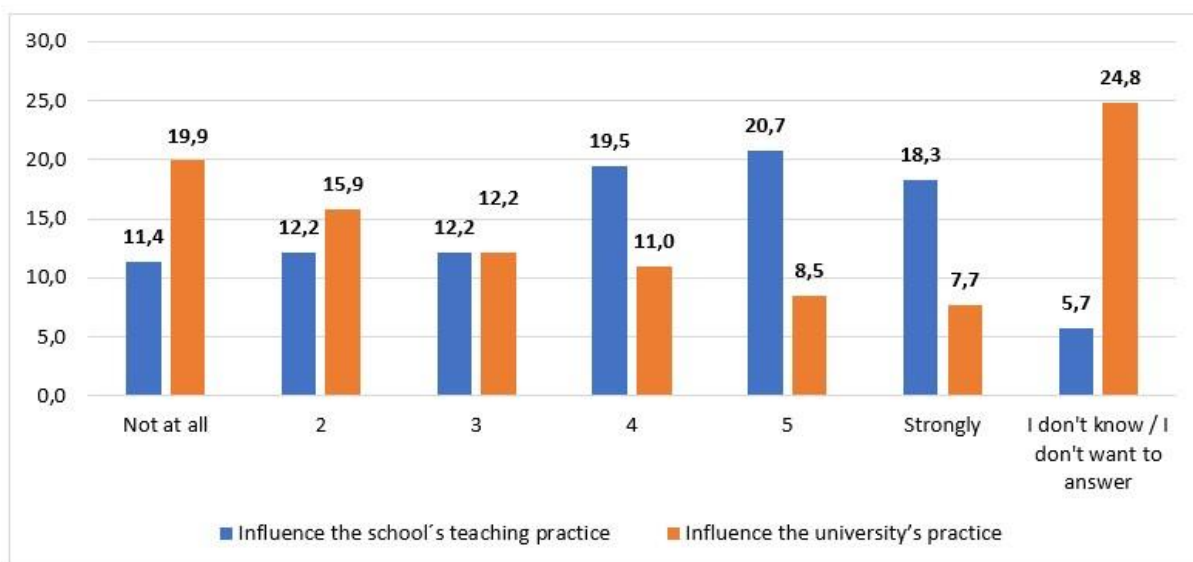
13. Figure. Influence of the partners on each others' practice (%), Question 8: For the following set of questions please think of one particular partnership your school has with a university. On a scale from 1 to 6, how much do you agree with these statements? (Appendix 2.)

4.3.2. Perceived benefits of school-university partnership

In the next question (In your opinion, how important are the following benefits of school-university partnerships?) respondents could express their beliefs on the most important benefits of the school-university partnership. Figure 9. show some of the results.
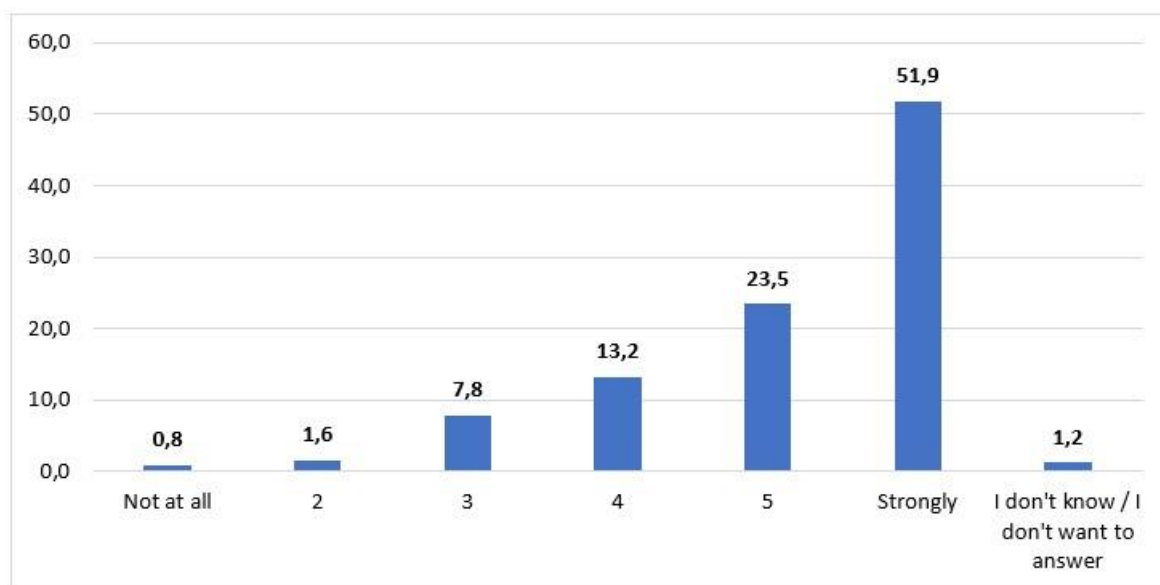
14. Figure. Benefits of the partnership: Mutual knowledge sharing (%), Question 9: In your opinion, how important are the following benefits of school-university partnerships? (Appendix 2.)

The partnership between schools and universities has allowed them mainly to support the exchange of knowledge and learning. The mutual support with regards to knowledge sharing and learning is strongly perceived.

This perspective is corroborated by type of school, in which 54,7% of the basic schools, 41,9% of the grammar schools, 52,4% of the integrated schools, 38,9% of the vocational

49

secondary education institutes, and 65,2% of other institutions state that one of the benefits has been strong mutual support between universities and educational institutions (Figure 10.).
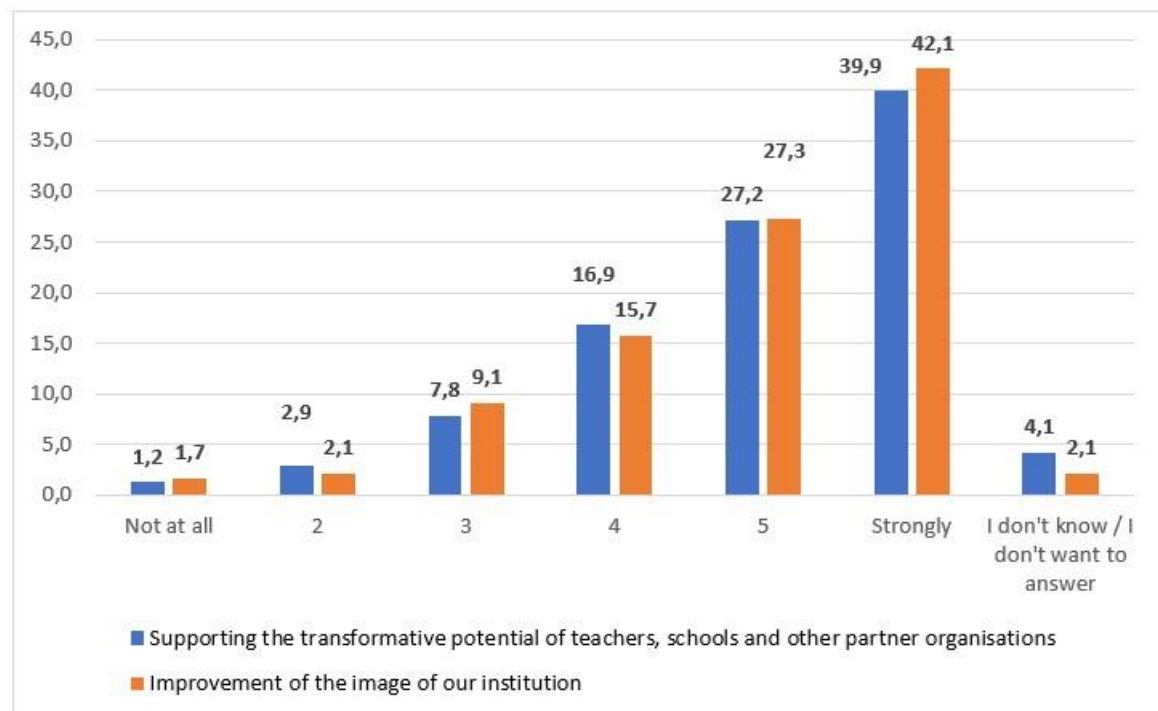
15. Figure. Importance of the benefits of cooperation in the transformative potential and institutional image (%), Question 9: In your opinion, how important are the following benefits of school-university partnerships? (Appendix 2.)

As regards the importance that educational institutions have attached to aspects of institutional image and the transformative potential of teachers, as evidenced in figure 9, it is mainly concerning the institutional image of schools. This is especially true for 45,6% of the basic schools, and 42,9% of the integrated schools, whose representatives consider the institutional image and the contribution that the cooperation can give to be very important, a smaller percentage of the other institutions located in this segment of the scale, resulting in 39,1% of the institutions that do not correspond to the typology, 38,9% of the Vocational secondary education institutions and 34,9% of the Grammar schools.

The opinion regarding the importance of the benefits in the transformative potential is far from what is stated in the institutional image, in that there is greater convergence in perceptions, for example, 52,2% of other institutions, 42,9% of the integrated schools, 41,6% of the basic schools, and 34.9% of the grammar schools state that the transformative potential of teachers, schools and other organizations is strongly important in the partnership, while a 38,9% in vocational secondary education scores at 5 on the scale.

4.3.3. Limitations of school-university partnership

Respondents were also asked to rank the importance of limitations of school-university partnerships from a set of pre-defined statements. Figure 11. presents some of the results.

Figure 11. analyses the motivational limitations and the lack of a relevant conception of cooperation. The opinions of the institutions are divergent to the naked eye; however, correlation analysis shows that they are related (Chi square=100,083; p≤1%). In the lowest

scores (2 to 5) of the scale, with the exception of score 1, 67,3% of the institutions have a motivational limitation, while 51,6% of them are located from the 6th onwards.
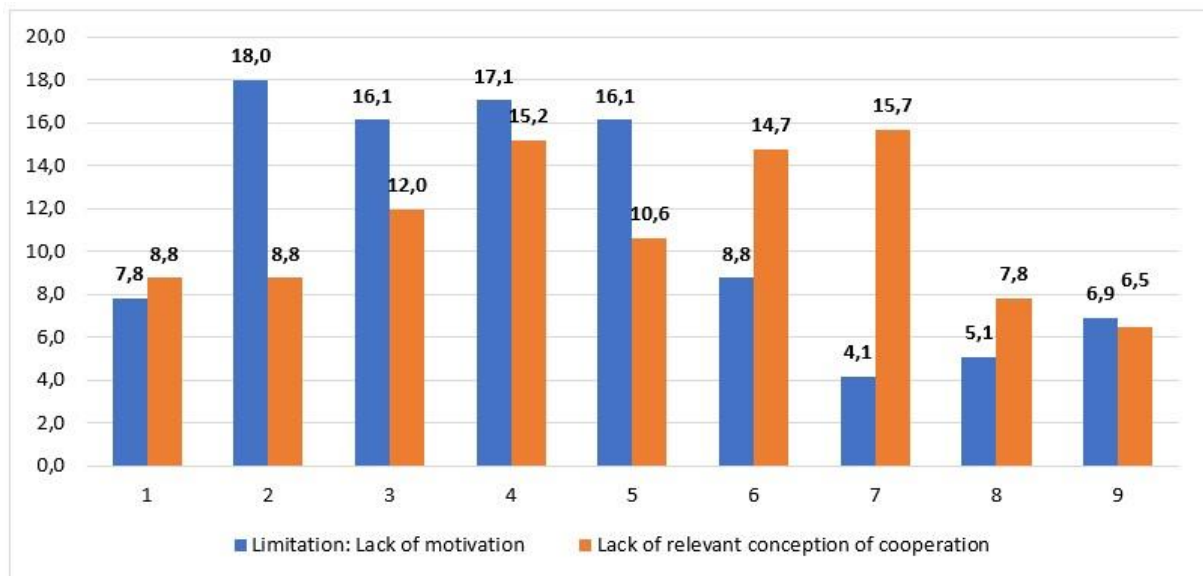
16. Figure. Limitations of the school-university partnership (%), Question 11: In your opinion, what are the limitations of school-university partnerships? Please rank the answers, giving 1 to the most important and 9 to the least important aspect. (Appendix 2.)

5. Discussion

5.1. Types of school-university partnerships

Excellent, effective partnerships are challenging to establish since they are based on the mutual trust and joint endeavours of those involved – and these take time to achieve. This is clearly visible in the EDiTE context: the intensive model of partnerships, where the partners intensively engage in common knowledge-sharing and knowledge-creating activities was by far the least common among the respondents. However, the partners had intentions to support each other's work, and this boiled down to the application of the structured partnership model according to 50% of the participants. Although in most cases, the level of involvement of the respondents did not change throughout the three years, more than one-third of the researchers reported a decrease in their involvement in the partnership. Unfortunately, the questionnaire did not cast light on the underlying reasons; therefore this shall be further researched.

Stepping beyond the EDiTE context, according to the Hungarian case, more than two-thirds of the participating schools maintain some kind of a partnership with universities. In most cases, the respondents reported that the purpose of the partnership was identified jointly between the school and the university; however, a contradicting result has revealed that the participants agree to a smaller extent that the school staff and the university staff worked closely together for a common purpose. Further research into this issue might reveal where and why things 'get off the rail', i.e. that schools and universities identify joint purposes, but the joint nature of the partnership weakens by time. Another result seemed to back up the idea of the weakening joint nature of the partnership: the influence of partners on each other's practice does not prove to be proportional; according to the respondents, universities have a significantly bigger influence on schools' practice than the other way around, and this, if we think about the three types of partnerships defined within the EDiTE context, restricts the partnerships to fall

51

into either the simple or the structured category, but not the intensive model, where the partners intensively engage in common knowledge-sharing and knowledge-creating activities.

5.2. Benefits of school-university partnerships

Within the EDiTE context, supporting the doctoral students in acquiring practical experiences and realising the empirical part of their research emerged to be the most important benefit; this is understandable, since throughout the quite short period of three years those involved in the partnership focused on the most urgent issue, and from a project point of view, this would be supporting the ESRs in their PhD journey. Although a little bit less but compared to other benefits still a high-achiever statement among the respondents was the importance of supporting mutual knowledge sharing and learning between the universities and their partner organisations. This shows that those involved in the partnership have a somewhat similar understanding of the importance of mutual benefits. Having a look at the results on the Hungarian national level, we can outline a similar pattern, i.e. mutual knowledge sharing is indicated as a highly important benefit of school-university partnerships by most of the respondents.

However, the numbers representing the respondents' actual gain through these benefits in the EDiTE context were lower in every case than the importance they assign to them. An interpretation of these results could be that such partnerships among various educational organisations and universities are considered to be important and beneficial by those involved; however, there is space for improvement when it comes to actual gains through these benefits.

5.3. Limitations of school-university partnerships

To reveal what worked and what did not work within the EDiTE context, we took a closer look at the limitations of school-university partnerships. It was not a surprise that the limited time availability, especially in the case of the university-based staff emerged to be the most urgent limitation of effective partnerships – there is a myriad of studies discussing how overwhelmed university-based staff are with their many different roles. However, a more interesting result might be that the respondents found the insufficient expert knowledge as the least significant limitation, meaning that all the involved sub-groups (researchers, university-based staff and partner organisation representatives) thought they had valuable knowledge and/or experience to share. This implies that the hindering factor of school-university partnerships might be found somewhere in-between the two worlds; according to the results, this can be due to the lack of relevant conceptions of cooperation (this limitation also scored high among the respondents).

Conclusions

Our intention with this paper was to provide a comprehensive overview of the quantitative empirical research conducted in the framework of the EDiTE School-University Partnership project's second pillar (quantitative pillar) between January and August 2019. Our endeavours were two-folded, because, on the one hand, we had the intention to explore the knowledge created by the project participants within the 3 years of EDiTE (from March 2016 to February 2019) in a broader, international context, while on the other hand, we also aimed to unfold the present-day situation of school-university partnerships within a narrower, national context of Hungary.

Although the data collection tools used in the two phases are slightly different, we intentionally designed them that way that some questions resonate with each other, and in this manner, we could view the results from the EDiTE context and the Hungarian context together.

This research has provided results that revealed that those involved in school-university partnerships generally consider such collaborations as beneficial, emphasising the importance of mutual learning, knowledge-sharing and knowledge-creating, but for some reasons in everyday practice, the well-known gap between theory and practice leaves its footprint on school-university partnerships, too. This manifests in, e.g. the dominance of one partner in the partnership (usually the universities influencing the schools' practice). According to the respondents, they mostly think they have valuable knowledge and experience that would be worthy of sharing, but the 'recipe' of doing this, to bridge the gap between schools and universities requires additional attention.

References

Al-Kurdi, O., El-Haddadeh, R., & Eldabi, T. (2018). Knowledge sharing in higher education institutions: a systematic review. *Journal of Enterprise Information Management*, *31*(2), 226-246.

Bebas, C. (2016). School-University Partnerships: The Professional Development Schools Model, Self-Efficacy, Teacher Efficacy, and Its Impact on Beginning Teachers. *School-University Partnerships*, *9*(2), 18-27.

Borko, H. (2004). Professional Development and Teacher Learning: mapping the terrain. *Educational Researcher, 33*(8), 3-15. http://dx.doi.org/10.3102/0013189X033008003

Campbell, C., Pollock, K., Briscoe, P., Carr-Harris, S., & Tuters, S. (2017). Developing a knowledge network for applied education research to mobilize evidence in and for educational practice. *Educational Research, 59*(2), 209-227.

Carpenter, B. D., & Sherretz, C. E. (2012). Professional development school partnerships: An instrument for teacher leadership. *School-University Partnerships, 5*(1), 89-101.

Childs, A., & McNicholl, J. (2007). Science teachers teaching outside of subject specialism: Challenges, strategies adopted and implications for initial teacher education. *Teacher Development, 11*(1), 1-20.

Cochran-Smith, M. (2005). The new teacher education: For better or for worse? *Educational researcher, 34*(7), 3-17.

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of teacher education, 61*(1-2), 35-47.

Foust, G. E., & Goslee, P. A. (2014). Expanding the Professional Development School Model: Developing Collaborative Partnerships with School Counselors. *School-University Partnerships, 7*(1), 101-109.

Halász, G. (2016). *School-university partnership for effective teacher learning*. KIP Regional Methodological Centre.

Handscomb, G., Gu, Q., & Varley, M. (2014). *School-university partnerships: Fulfilling the potential*. Literature review.

Jensen, M., Mattheis, A., & Loyle, A. (2013). Offering an anatomy and physiology course through a high school-university partnership: the Minnesota model. *Advances in physiology education, 37*(2), 157-164.

Lai, E. (2010). Getting in step to improve the quality of in-service teacher learning through mentoring. *Professional Development in Education, 36*(3), 443-469.

Levin, H. M. (2004). Learning from school reform. *Partnership and change: toward school development*, 31-51.

McLaughlin, C., & Black-Hawkins, K. (2004). A schools-university research partnership: Understandings, models and complexities. *Journal of in-service education, 30*(2), 265-284.

Nandan, M. (2010). Service learning partnership between university and school students: Experiential learning inspired through community research. *Journal of College Teaching and Learning, 7*(7), 25.

Ng, S. S., & Chan, E. Y. (2012). School—University Partnership: Challenges and Visions in the New Decade. *Global Studies of Childhood, 2*(1), 38-56.

Snow, D. R., Flynn, S., Whisenand, K., & Mohr, E. (2016). Evidence-sensitive synthesis of professional development school outcomes. *School-University Partnerships, 9*(3), 11-33.

Stephens, D., & Boldt, G. (2004). School/university partnerships: Rhetoric, reality, and intimacy. *Phi Delta Kappan, 85*(9), 703-707.

Taylor, A. (2008). Developing understanding about learning to teach in a university–schools partnership in England. *British Educational Research Journal, 34*(1), 63-90.

Thomas, S. (2012). Evaluating schools as effective professional learning communities.

Van der Nest, A. (2012). *Teacher mentorship as professional development: experiences of Mpumalanga primary school natural science teachers as mentees* (Doctoral dissertation, University of South Africa).

THE ESSENCE OF PURPOSEFUL PARTNERING: QUALITATIVE RESEARCH ON INSTITUTIONAL LINKS WITHIN EDITE

Helena Kovacs, Khin Khin Thant Sin, Dana Nurmukhanova

ABSTRACT

Institutional partnerships often bring a number of benefits, provided they are embedded with adequate time and human resources. As an example of innovative training network, one of the core missions of EDiTE was to deliver a doctoral degree programme through tight collaboration between schools, universities and other educational partners. Through qualitative inquiry, this paper uncovers benefits and bottlenecks identified by the participants of the network through their own experiences. Findings point to valuable insights and lessons learnt, and most notably argue for a careful planning based on purpose and trust.

Keywords: institutional partnership, school-university collaboration, qualitative research, EDiTE

1. Introduction

This paper presents the results of the qualitative methodological inquiry pillar of the School-University Partnership research.

The results of this research pillar make it possible to understand the sophisticated notions comprising school-university partnerships, how and why they strive and where they continuously need attention. The outcomes also note how, regardless of the intentions and careful planning, school-university partnerships can turn south and end with disappointment. Essential factor in having a healthy relationship seems to be embedded in mutual interests between the main actors rather than among those that might be signing an agreement of cooperation. In other hands, while structurally school-university collaboration rests on an agreement made by the leaders and administrators of two institutions, the quality and satisfaction of it rests almost entirely on the interactions between people implementing it. In simpler terms, structural agreements go as far as the researchers and school teachers take them, and oftentimes this happens only if there is a genuine interest and desire to engage.

2. Context and Guiding Frameworks

The context of this specific pillar is a rather important aspect of understanding the overall outcomes and results. The research specifically focuses on the nuances of school-university partnership created through the European Doctorate in Teacher Education. (EDiTE), a Horizon 2020 project delivered under the Marie Skłodowska Curie research framework. The four-year project aimed at bringing 15 early-stage researchers (ESRs) from around the world to develop scientific projects on topic of teacher learning within scope of their doctoral education. The doctoral programme was provided by a consortium of 5 universities, and each had employed three early-stage researchers. It was expected that these researchers create a network across five

countries, as well as embed their research projects into the local universities and scientific communities.

EDiTE created a very specific context and this is primarily because it was established as an Innovative Training Network which under the framework of Marie Skłodowska Curie aims to develop research that is creative, entrepreneurial and innovative. This said, EDiTE was developed with close ties to identified partners in order to have relevant research projects facing current and future challenges in the area of teacher education. The main notion of EDiTE was collaboration at several important levels. The strong institutional support provided to the early-stage researchers through supervision with the senior researchers was designed to assure the robustness of the research design, but the ties and collaboration developed with the partner institutions held a promise of providing a relevant social inquiry and study impact.

EDiTE involved 23 official partners, most of them schools, as the summary in Table 1 shows.

Table 5: Type of external partners per country

Type of partner	AT	PT	PL	HU	CZ	Total
Schools	3	2	4	4	1	14
Research and/or training institution	1	-	1	2	-	4
Educational agency	-	1	1	1	2	5
Non-governmental organisations	-	-	1	-	-	1

Source: authors

The partnership framework within EDiTE was developed by Eötvös Loránd University (ELTE) as part of the co-called Package 5 of the project and guidelines outlined in an internal document entitled *Guideline for Building Institutional Links*. Based on the rationale of the Salzburg principles of doctoral education as well as the European Commission's principles for innovative doctoral training, the guidelines offer a robust logic to establishment of an innovative training network in teacher education (Halasz, 2016). In case of teacher education this would mean bringing together academics and practitioners in a collaborative framework that aims at producing valuable multifaceted research outcomes. Furthermore, institutional partnerships aimed at creating a base for sustainability and long-term relationships among diverse organisations involved with the project. According to this, the external partners would provide research opportunities for the ESRs and actively be involved in co-creating research questions based on the practical needs and specific learning environments. As outlined in the guidelines, the specific objectives of institutional links are to (Halasz, 2016):

- Initiate long-term cooperation with different types of schools and different kinds of educational institutions
- Build institutional links for knowledge exchange and public engagement, aiming at exploitation of research results
- Enhance consortium and institutional capacities for building and sustaining collaboration with institutions involved in TE.

Hence, the institutional links within EDiTE were identified and developed with an aim to actively realise the research of individual ESRs through a tight collaborative manner. These

collaborations, particularly with external partners, were focused to support knowledge exchange, ESRs' empirical research, but also provide a platform for "transformative potential of teachers, schools and other partner organisations" and "support cross-national horizontal sharing of knowledge and good practices between partner organisations" (Halasz, 2016).

While the institutional links were to be implemented through a set of coordination tools and mechanisms with the support of administrative staff at each of the partner university, an important element of the collaboration was represented through a number of underpinning principles. Described in the guidelines, they represent the following (Halasz, 2016):

- Linking research and practice – partners will actively seek opportunities of linking doctoral training and research with institutional practice supporting innovative solutions
- Mutual respect – academic and non-academic partners see each other as having equal standing and communicate with each other on the basis of mutual respect
- Mutual interest – partnership should serve the interest of both academic and non-academic partners cooperation should be based on the principle of mutual interest and usefulness
- Mutual learning – each partner has the intention to learn from each other. All forms of horizontal knowledge sharing are supported
- Diversity pf partnership models – the development of various models of partnership between EDiTE-EJD universities and partner organizations is supported, according to their capacities and mutual interests
- The active involvement of partners – partner organizations should be encouraged to play an active role in the implementation of the EDiTE joint research programme
- Supporting horizontal cooperation between partners – horizontal cooperation between partner organizations should be encouraged at both national and international level
- Transparency and visibility – the partnership should be as transparent and visible as possible
- Openness – although the number of primary partners is fixed and the primary partners are listed in the project description of the Grant Agreement, new partners can join the existing circle of partner organizations.

Based on these principles, it is possible to understand the qualities of both individual experiences and the overall success of the project. Furthermore, according to the guidelines, the implementation and the forms of collaboration in partnerships can undertake different interactions and as such be classified within three categories, as shown in Table 2.

Table 6: Types of partnerships

	Simple model	Structured model	Intensive model
Level of cooperation	Basic	Advanced	Well advanced
Main features	Visits to the partner Information sharing	Support to ESRs Set of common rules	Intensive engagement in knowledge sharing Creating common activities Direct involvement of partners in delivery of project
Frequency	At least one visit in a year	More than once a year	Weekly and daily interaction

Source: Authors. Modified from the Guidelines

While the planned and the real implementation might have had some discrepancies, the idea that was setup through this guided framework, as well as the setting it potentially provided are the main aspects for delivering teacher education research through a partnership with non-academic institutions and organisations.

3. Contributing literature

Even though the contextual setting provides a rich base for development of analysis, it was rather valuable to provide an outline of literature that might support and enhance the analysis and provide a better understanding of data.

Collaboration between universities and schools in education has been a major interest over the last two decades. As education is one of the most influential aspect in fast-paced and changing world, an emphasis to improve its provision becomes a major concern for every country (Tsui, Edwards, Lopez-Real, & Kwan, 2009). While there are multiple dimensions to take into account, one of the solutions for improvement includes establishing partnership between universities and schools which has been gaining interest and importance since 1980s. According to the Tsui et al. (2009), criticism related to the quality of teacher education led to the implementation of professional development schools in the United States in order to improve the initial teacher training, the continuous professional development and research within the field. This is regarded as the birth of school-university partnership where the schools and universities are working together to solve problems related to the quality of teacher education (Tsui et al., 2009).

At the same time, partnership between schools and university became a mandatory requirement in England and Wales for the training of teachers. In Australia, transferring responsibilities of teacher education from universities to schools was one of the events where school-university partnership became a major emphasis (Tsui et al., 2009). School-university partnerships could also be seen across Europe, as according to Halasz (2016), this type of cooperation is increasingly developed to more advanced levels.

Since collaboration is an important factor in the areas of professional learning, the term "partnership" becomes the most essential element for the purpose of improving education. Term partnership has been scrutinised through literature as a concept that varies according to different situations of professional learning. Most popularly, partnership has been mainly seen in relation to industries. In teacher education and educational sciences, school-university partnership is an emerging concept even though in some countries, there is already established partnership between school and university for teacher education.

Nevertheless, partnerships between schools and universities seem to develop and become a major interest worldwide, particularly in order to improve the quality of initial teacher education (Tsui et al., 2009). The school-university partnership, for example, appears in the mentor-mentee collaboration between schools and university in initial teacher education. Yet, sometimes, the collaboration between the university and the schools aims for the continuous professional development of both the university and the school teachers. According to Stoll and Louis (2008), "purposeful collaboration [between schools and universities] is more fruitful to learning than competition". Hence, crossing the boundaries of schools and universities definitely produce a lot of benefits for each community, and school-university partnership has been seen improving the professional learning of the organization. Hargreaves (1999) mentions that "networks and webs for educational research and professional knowledge creation would include small-scale, preliminary knowledge creation in a consortium of two or three schools to large-scale" (p. 140) encouraging different types of horizontal and vertical collaborations.

Traditionally, teachers and schools are considered as consumers of research knowledge and not often invited to participate actively in the production of new knowledge. However, with expanding the definition of educational research, teachers are becoming more visibly seen as colleagues in production of new knowledge, collaborating more closely and equally with academics. One of the examples of school-university partnership in the production and use of knowledge is the *School-University Partnership in Educational Research* which has been carried out by the Faculty of Education at Cambridge (McLaughlin, 2006). This partnership was also connected to school development as teachers and principals improve their skills through collaborating in research and networking with other schools and organization (McLaughlin, 2008). When teachers from different schools are working together with other organisations, this leads to multiple advantages and lessons learnt for both schools and other organisations. Hence, partnership between the schools and the universities enables discoveries and analyses of teaching methodology and classroom management.

Stoll and Louis (2008) argue that "[t]he world is becoming profoundly more knowledge-rich, and networks, in response, are now an increasingly significant organizational form" (p. 45). And while this is profoundly true, there is no lack of benefits and necessity when it comes to networking and partnering in 21st century. There is, also, an increasing emphasis on the place of school–university partnerships in teacher education internationally (*School-based partnerships in teacher education*, 2018). Going beyond the limits of size, for both schools and universities, and advancing knowledge and quality education that gets established in a multiple of settings and becomes a valuable asset in an ever challenging society (Stoll & Louis, 2008).

According to the authors of the *School-based partnership in Teacher Education*, there are two distinct arguments about the nature of learning to be a teacher. One opinion is seeing learning to become teacher as a reflection on practice. On the other hand, teaching is seen as a craft. Observing teacher learning as a craft is the opposite view of the university which sees it as a professional activity including theories that apply in society. Yet, universities are often criticised for not being able to produce adequate skills for novice teachers, evoking a need for change and transformation of university-based teacher education. To change this form of learning, the establishment of closer relationship between universities and schools to integrate the learning from universities with the authentic teaching experiences is a requirement (*School-based partnerships in teacher education*, 2018).

As the partnership is important for successful education and for developing quality provisions, understanding of the essentials of school-university partnership is noticeable. To fill the gap between theory and practice in initial teacher training, the continuous professional development of teachers from both universities and schools is needed. Also, the research development in education can lead to the professional development of teachers and teacher educators. From this, research can also foster an overall school development and university development, leading to improved education system as a whole. This creates a circle where every sector of education (initial teacher education, continuous professional development, and research and school development) is connected to each other and it is difficult to eliminate the collaboration between schools and universities if quality education is a desired goal.

4. Methodology

This pillar was developed around a qualitative research approach, mainly relying on semi-structured interviews. The qualitative data collection aimed at providing understand of the phenomenon of school-university partnership in greater depth and capturing the complexity of school-university collaborations including the contextual and cultural traits that it holds. Furthermore, it helped in understanding the essence of an innovative training network such as EDiTE that was systematically build around an idea of institutional networking.

Semi-structured interviews are a suitable tool for gathering data necessary for in-depth understanding because they invite people to tell their experiences and stories (Seidman, 2006). The interviews were developed by the core team (authors of this paper) using initial research results from the first quantitative round. The feedback from the quantitative team, as well as initial understanding of the field and the overall research questions supported the design of the preliminary analytical framework that defined each interview question, providing a set of indicators and the relevant rationale.

The semi-structured interviews were conducted by the core team after having a working session where the approach to interviewing was synchronised, ensuring a more reliable data collection. The data collection was performed both in person and over Skype from mid-February to mid-May 2019. The initial number of interviews was aimed at 15 and the final number counted 11 interviewed professional. The respondents were selected from different countries and varied positions within the EDiTE consortium. The selection took into account the value of different opinions, including interviews with early-stage researchers (ESR) and self-funded researchers (SFR) as participants encouraged to collaborate with EDiTE partners for the purposes of their own studies. It included heads of the consortium and supervisors as actors that have been establishing and nurturing the institutional collaborations, while advising the researchers. Naturally, it also involved administrative staff that have been working on implementational matters, overcoming language and other practical barriers. Finally, the interviews were conducted with the representatives of EDiTE partner organisations in order to gain valuable insights on their experiences. Table 3 provides an overview of the different respondents.

Table 7: Different types of respondents and their countries of residence

Type of interviewee	Planned number	Actual number	Consortium countries
Early stage researchers (ESR)	3	3	Czech Republic, Poland, Austria
Self-funded researchers (SFR)	2	1	Portugal, Poland
Heads of the program (Head/Admin)	2	2	Portugal, Poland
Supervisors (Head/Admin)	1	1	Hungary
Administrative staff (Head/Admin)	2	1	Austria, Poland, Portugal
Partner organization representatives (PO)	4	3	Hungary (x2), Austria, Portugal

Source: Authors

Interviews were recorded after having the consent forms signed by the respondents and on average they lasted about 30 minutes per session. All records were stored safely, transcribed and the recordings were deleted. The transcriptions were stored on a secured online database with limited access by the main research team.

The data analysis was done by the core team using manual coding technique. Before the coding process, the qualitative team gathered to negotiate the codebook and coding procedures. Initial codebook was developed following a joint coding exercise performed by each qualitative team member individually. The codebook was open to additional codes throughout the coding process. In order to achieve reliability in further analysis, several documents were cross-coded, which meant more than one researcher coded the same document. Table 4 presents this in better detail.

Table 8: Distribution of documents for coding

Document type	Researcher 1	Researcher 2	Researcher 3
Early stage researchers (ESR) 1	X	X	X
Early stage researchers (ESR) 2		X	X
Early stage researchers (ESR) 3	X		
Self-funded researcher (SFR) 1	X		
Head/Admin (H/A) 1	X	X	
Head/Admin (H/A) 2	X		X
Head/Admin (H/A) 3		X	
Head/Admin (H/A) 4		X	
Partner organisation representative (PO) 1	X	X	
Partner organisation representative (PO) 2		X	
Partner organisation representative (PO) 3			X

Source: Authors

Since Researcher 1 and 2 bear main responsibility for the qualitative pillar, the workload was adjusted accordingly. The cross-coded documents were used to determine the reliability of the coding, and presentation and analysis of the data was done by all three researchers independently at the first stage. At the second stage, the entire analysis was overlooked by the research coordinator (first author), providing synchronicity, which was followed by another round of comments and feedback by the core team and at a later stage by the entire research group.

5. Findings

The findings for this research pillar present a wide array of different perspectives of school-university partnership. The results open a discussion into the beneficial side of the endeavour but also present the hardships endured through EDiTE types of partnerships.

5.1. Initial contacts and connection-making

The most interesting way to start with unpacking the data is to look at the early involvement of actors in preparing the partnerships. In the initial stages, when the project was first drafted in the Grant Agreement, the main drivers for selecting and negotiating partnership were the heads of the consortium. Interviewees did note that collaboration often rested on the existing connections with the schools as these quotations show:

"Since before the program started for the application, we already have identified the future or prospective partner organizations. And here, we immediately look for a school cluster close to us. We choose this cluster because it already had several schools. Not only close to us, it also had all levels from elementary schools, middle schools to high schools" (H/A2).

"In our case, the university has a long historical connection with the schools and universities. That means that for example, in one school I was working for twenty years. We have a long history of working with them. And we tried to use this as a partnership to networks.

For example, one of our collaborators is a professional friend of the head of the programme and they are working together in the leadership preparation programme" (H/A3).

Some of the interviewees confirmed that there are long traditions in collaborating with schools which provides to be both good and bad for the schools, as the next statement proves. However, this inevitably supports making contact and developing partnership from the initial stages:

"Traditionally in Hungary there was a basic school based in 1970s. (…) the minister enacted a programme in which universities would have a basic school where students could go and practice. These were very similar to now clinically based teacher education. It's a long tradition and we see the benefits and drawbacks of this system because of a long connection with the universities and they restructure the life of these schools and they are now elite schools. Now this is a big problem but a strong formal connection with universities and it's a traditional thing in Hungary" (H/A3).

And benefits frequently overcome the drawbacks as this interview notices:

"With these partner schools, we have many different kinds of events like the placement of student teachers or the development of research project, or professional development of in-service training, some of the schools are our partners through other contacts, so in this case, I reach directly to the people I know there, for example, in one school, I connect directly with the director because we have already established the partnership for other things, so it is very easy to arrange a school visit with them" (H/A2).

From the perspective of researchers, most of the times they already had a reliable person to contact in the selected partner school. And while in some contexts the contact would first be established by the administrative staff – due to language or due to more formal procedures – in some instances the researchers would initiate the first contact themselves. In some cases, the researchers also found themselves as a resource to the school and not merely a collector of data:

"My initial emails are usually provided with a very general statement. Because I don't want to be very detailed and pushy. So, something like: if I could be of any help please let me know. But I don't usually say I can provide you with materials, I provide a very general statement. Just not to impose myself so much" (ESR3).

It was clear from some interviews that the connection between the two partners is easier when the school or the partner organization and the university are in continuous touch so they can be easily accessed. The personal relationship that already existed is also an important factor for successful collaboration to take place because oftentimes this would mean a recurrent, continuous previous collaboration.

"The personal contact also plays the role. So they know each other and if one asks for a favour, you know it is welcomed" (ESR 3).

The key contact person's relationship and position are also considered an important factor in implementing connection between the two organizations. For schools to get in contact with someone on a higher level at another institution was, in some cases, rather beneficial.

"During the time when I was establishing the contact with the principles I was the rector too, and that was helpful, I think there was a lot of prestige. And all of this helped to establish the contact" (H/A 1).

Overall, general impressions from all interviews does hold a conclusion that the collaboration is more easily established when it is based on personal and individual contacts. Often, especially when establishing new partnerships, the role of the initiator makes a difference; for instance, if the person in charge of contact is at a higher level, this might bring a certain value and enhance the importance for the partners. Nevertheless, the initial contact and the fact that a partnership is signed still does not indicate the quality or the level of sustainability of the connection. Few other factors that are explored in the further text can significantly determine this.

5.2 Types of partners

While the Grant Agreement did require initial partnership with non-academic institutions, the consortium members also involved efforts in diversifying the types of partners in terms of level of education or the type of institution. In most contexts this involved all levels of pre-tertiary education system: elementary, secondary, gymnasium or grammar school. In some places, such as in Poland this involved at a later stage a non-governmental organisation. In all five countries, national research agencies and/or national and regional education authorities were included as partners too.

In some cases, the partners' list grew as the researchers came with their specific interests and requirements, which was registered with both joy and bureaucratic trouble:

"And they [the new schools] also become partners. But we also had a chance to work with non-official partner schools, they also work with us but they are not the official-partner for EDiTE, mainly because of bureaucratic reason" (H/A2).

In many places, like Poland and Portugal, arriving researchers had specific demands regarding their research scopes, and at some instances, these could not be answered by the original selection of the partners. Establishing new ones was often also motivated by the researchers and their specific interests:

"When one of the students came, the organization that he worked more with was not a school but an NGO. And this was an NGO that helped him gain access to the schools. So, we added an NGO. As we grew, the partnerships were motivated by the researchers. Another partnership was motivated by one of our students, she worked in the school, so we did research in her school. So basically, we gain her as a partner" (H/A1).

Even though the consortium focused carefully in selecting the different types of partnerships for the project in order to suit a variety of research and study issues, there was also an understanding that "the best contacts with the schools were made differently" (H/A1). This primarily meant that the connections and types of partnerships with diverse organisations were at their best if the parties had a purposeful and true use of it, both in terms of research and in terms of being a resource to knowledge exchange.

Nevertheless, across the sum of the interviews, the personal contact seems to prevail as most effective in establishing a contractual relationship. The researchers did report establishing collaborations beyond the initial partnerships, yet even this was with the support of the university staff, administrators and supervisors. Having contacts on ground proved to be the key element in establishing partnerships as this interesting excerpt points out:

"The secondary school principal of this school knows the coordinator of the programme and I remember when he [the coordinator] told us how he spoke to her [the principal] about EDiTE and she immediately showed interest. And this is how it started. I think personal relationships are the key" (ESR3).

Nevertheless, some researchers reported that they needed to go through their own private networks in order to get the wanted number of teachers for their research. In some aspects this also had to do with the limitations of language which is further explored below.

5.3 Research in relation to partnerships

Conversations with many researchers pointed out that the scope of the research was rather detrimental for a successful lasting partnership. Whether it was a research based on citizenship or changing practices in higher education classrooms, the research design and particularly the choice of methodological approach highly influenced the depth of the collaboration. For instance, qualitative methods were more valuable in maintaining a deep connection, and using observations and reflections, as well as diaries and other ethnographic approaches helps a lot:

"I go to classes of professors, I observe the classroom and collect the data and after the observation I turn to professors for the data I collected in classroom and give feedback and I repeat this during the semester once a week" (SFR1).

In some contexts, the researchers managed to stimulate interest from the partners merely because of the relevance of their field or topic:

"Through my readings, I also understood that assessment is an issue not only in Europe but globally; how teachers handle difficulties in assessment is itself challenging. So, this area covers the third main theme of the EDiTE project within the emerging European context because it seems to be an issue not only in Europe but also in global. So, my research area is the focusing on three main aspects of EDiTE project" (ESR2).

There were also cases in which the research topic, methodology or overall approach did not matter as the initial agreement was based on the "open doors" policy and a school would welcome researchers regardless of the depth or potential benefits.

"This is the thing with Austria, which I really appreciated, the partner organisations gave us unlimited access. You know we had these three schools, we visited them for the first time and then we were put with some people, and then we could just go there at any time" (ESR3).

However, even in these cases the lasting relationship only remained when there was a mutual interest and curiosity from both sides involved. One of the researchers pointed out that even when the data collection was over and the dissertation almost ready, the connection with some of the teachers remained and they would meet up for socialising and talking about topics that they both enjoy exploring.

5.4. Essence of collaboration

The idea of collaboration was not unified across EDiTE network. Some of the partnerships ignited a continuing relationship that went beyond initial "business work":

"Even though I'm done with collecting data, I think it is interesting to stay in touch with teachers (...) I was also personally involved with some teachers. I kept the friendship and we continue to communicate. She wanted to meet for lunch or dinner. Now my research is over but she [teacher] was an interesting person and I really liked talking to her" (ESR3).

Furthermore, if the research design would allow it, partnerships and the collaboration provided a great deal of professional support between educational practitioners, regardless whether they were researchers, university lecturers or school teachers. A researcher working with higher education professionals and doing reflective observations as part of the research, noted:

"I have one teacher I observed, when I started saying that everything she did was good, she started crying because she got the bad results all the times from the students. And she said that 'oh my god, you are not here to point to my mistakes'. I said 'we are here to work together in the area that you need to improve'" (SFR1).

These great results that reflect the interpersonal aspects of the school-university partnership but also the value of an appropriate methodological approach were truly some of the wanted outcomes of institutional links. This was not as clear at the beginning as this supervisor explains:

> *"In EDiTE, I think that we didn't really know how we will use this type of partnership. And I didn't know how we have to balance between the students and others. So except in thesis we were not able to find other purpose. Maybe by experimenting we are finding the right way"* (H/A3).

Reflecting on the approaches of university researchers and how they relate to partnership, there is a lot of valuable input that both researchers and practitioners gained. A dominant echo of this was to point out the dominance and taken-for-granted privilege that universities assume when developing partnerships with schools. This reflection provides a rich summary of it:

> *"I think sometimes we [researchers] take it for granted but they're [school teachers] there for us. And maybe this is not a part of the question but I feel I would like to talk about it and I think I also wrote about it in the survey. I really feel it is a partnership so the word partnership should reflect this relationship.* **It has to be an equal relationship.** *And I have noticed from my interviews and from what my colleagues do, or how they talk, they engage in a power relationship, dynamics that I did not like. We should reflect on how we speak to teachers. Just because we are researchers doesn't mean we are or we have the power to and the privilege to just be there"* (ESR3, emphasis added).

The quotation accounts for what often has been seen as a case of schools being sites for data collection and a mere service to researchers. And, while this might be a fine balance, the attitude of privilege and dominance that university gets in preparing the agenda and drive it without equally consulting the practitioners is something that needs reflection. Researchers noted that language difficulties also contributed to defining an unequal relationship as teachers become apologetic for their lack of knowledge of English language. Several researchers noted that this very much needs to be carefully and constantly in minds of exchange academics.

Another similar notion is the understanding that researchers take only a segment of the entire teachers' work and efforts. Thus, often, the representation of this little segment needs great consideration and as pointed by some researchers, academic work sometimes lacks the reflections on this due to its sense of "higher worth". Nevertheless, the connections between practice and research are seen as essential, even though they need to be carefully reflected upon:

> *"I know there are a lot of good researches but these are remaining at the level of university. These researches never go to the school, they don't find the schools, it is just theory. So, my question is 'how can we turn theory to practice?' That is why I can help everybody in this way"* (PO3).

Therefore, the essence of partnership needs to reflect needs and interests of all parties involved and the collaboration needs to be one based on equal standing, value and understanding. Of course, there are factors that can ease or hinder the relationship but based on the reflection of some researchers and practitioners, full respect and contribution at both sides is truly essential.

5.5. Ease factors

In addition to what was defined as the cornerstone of the relationship between partners, interview showed interest and motivation grows when partners deem to be helpful to one another. In other words, if the study area conducted by the researchers is connected and useful for the partner organization, the collaboration between the two organizations is more active than collaborating without any interest between partners.

> *"The teachers are welcoming me because I am exploring an issue which is very much connected to the classroom level, something like very crucial and important" (ESR2).*

If the topic or the area conducted by the researcher is strongly connected with the teachers' problems, the teachers are very motivated to share their insights and this can lead to the high collaboration between partners. The results also highlighted that the collaboration between partners is high when the principals got involved and motivated the teachers. Additionally, interest in the researcher's background and country of origin also seem to render in some relationships:

> *"Principals and the school teachers are also very welcoming and have well cooperated with me, and then they organize a tea session for me. Some schools even asked me to give a talk on my country's education system" (ESR2).*

Of course, this would need to come with the willingness of the researcher and interest from the practitioner to engage in something that can be identified as a common curiosity.

5.6. Motives and expectation from schools

In several occasions, motives from the partnering school determined the willingness and the level of participations. For instance, schools with particular type of practice that they wanted to "show off" to the outside world were keener to get involved and more motivated to collaborate.

> *"We (the teachers) want to change the idea of teacher training college. I mean that the teachers learn more through the practical things. And maybe the university teachers change their mind or idea because the student teachers think that they [university teachers] never have this kind of experiences" (PO2).*

"In the proper partnership, the schools accept the universities and the students. And the students come to the schools and they even share their knowledge and findings with the schools. So, this is the proper partnership. Schools expect that what kind of recommendation they will get from this collaboration" (PO1).

There was a common understanding that collaboration between institutions in education does bring benefits, even though the motives might be different.

"For educational sciences it is really useful for creating networks" (H/A3).

"I think the project is prestigious. It's a European Union project, so the schools can always put it that they have another project. Secondly, our institution has a good reputation in the city. We produce good teachers for them. Because we have a teacher education unit, they get additional training, they're getting masters degrees and so on. They know us as an institution that provides good training, and quality training. I think this has opened doors" (H/A1)

The fact that EDiTE partnerships could bring more than just another tie to the university, as noted in the last quotation, was a significant factor to understanding the additional motivations schools might have to join the programme as partners.

5.7. Openness and Trust

Even with the prestige that might come in getting involved with the EDiTE as partners, most of the engagements were developed on the basis of personal contacts and this reflects the role of trust that institutions in education hold.

"Because she [supervisor] knew some people, so she connected me with some teachers and principals. And they allowed me to go to school and talk to teachers. It was kind of a trust thing" (ESR3).

Inevitably, the more connections the better options supervisors and researchers had to develop relationships. The openness from the side of the partner organization, especially sharing all the available information between partners has facilitated the deep communication. The transparent communication and environment can also create the strong trust and attachment between the researchers and the school teachers during collaboration.

"I wrote email to them, asking whether they would like to participate in research, all the teachers are welcoming and they even shared their student work, the way they assess student learning and they share all the materials with me and they even said that if I want to record classroom teaching, I can do it" (ESR2).

In some situations, schools revealed their willingness to know the research finding and to get the information about the research after it has been done by the researcher. According to interview findings, strong partnerships can be built through the researcher's openness to share their information after the research has been conducted. According to the interviews, openness and the negotiation between the partners is also essential in the initial stage of partnership for building a successful collaboration.

> *"The principal asked me to share my thesis when I am finished. I am sure that the school is really willing to get information. So, I'll send my publication to teachers who are interested"* (ESR2).

Trust is also an important factor to build the successful partnership. Most researchers pointed out that they could build beneficial collaborations with the partners in which trust plays a significant role. This was also reflected by the partners:

> *"People trust me and they don't care about the evaluation much. They trust in the process and they trust that 'something good can happen within supervision' so we are doing it regularly in the school"* (PO1).

> *"I feel that they know how I am doing [the research] and they know that I am going there not to judge them, I am just going there to do something different. (...) If you feel that someone is very supportive and feels that you are not to judge them but help, then, I think people will open up"* (SFR1).

Arriving to the position of trusting for many situations comes from a position of openness. Nevertheless, neither trust nor openness come easy and in programmes such as EDiTE, there are several bottlenecks that need to be handled in order for the partnership to work.

5.8. Difficulties with language

Language is not only a difficulty that hindered the collaboration but had also hampered trustful communication for the partnership. When the school teachers can speak the language spoken by the researchers, the communication between them is easier and the collaboration is stronger.

> *"I feel like if I choose foreign language teacher, they speak English, so I can understand and get better data on my study in depth"* (ESR2).

> *"Every time, we [the school] are invited for this topic, my principal called me 'please come, we need you to talk'. One thing is that because of my prior experiences on these topics and the other one is because of my English"* (PO1).

Language is a major difficulty that was faced by most of the participants in partnerships when they collaborate with the schools in a non-native country. According to an interviewee, a strong collaboration between partners could not be built because of different languages spoken among partners. Due to this difficulty, the partners could not communicate directly and this can limit the collaboration between the researchers and the schools.

"The language issue is a huge thing. Me not being able to communicate in these languages that are also barrier between me and others. I could access these English classes, but yes the language issue is a huge thing" (ESR3).

Sometimes, the heads of the programme and administrative personnel had to perform as mediators and translators because of the language difficulties. This extra workload was also reflected in translation of transcription, which potentially was not anticipated as a needed support for researchers by the administrative personnel.

"Some did interviews. And not all the teachers and students and parents knew English. So I was translating. And I did a lot of transcriptions" (H/A4).

However, EDiTE was developed with expectation that the researchers will most likely not speak the language of the host country, as well as that they will not speak the language of their secondment country. Therefore, having administrators to deal with the language issues and carefully selecting the partners who are more open to receive foreigners was inevitably needed in the design of institutional links.

5.9. Difficulties between partners

Collaboration between partners has proven to be stronger and realistic when the universities and the partner organizations actually cooperate and share information with each other. In some cases, the egocentric collaboration from the universities made the partnership an unrealistic one, clearly presented in this quotation:

"If the university is working with the schools, the students from the universities couldn't just go there and do their data collection and make their research only. Most of the collaboration with universities suffers from this. The principals and the teachers don't know anything about the research done by the students. The students never come back to schools to share their information. In my opinion, this is not the proper partnership" (PO1).

According to the researchers, sometimes the national policy became an obstacle in establishing the partnership between the two organizations. Even when there were established agreements between the partners, difficulties at the political level or due to long and tedious administrative procedures made it impossible for partnerships to continue.

"So even the partner organizations that had an agreement with the EDiTE we still needed to do a very long process of ethical approval in order to go there. And that was the difference. That was a bit challenging for me. (...) There was a workshop for teachers, particular with those who teach citizenship to people who come from different countries. So, I wanted to see how things are done in there. But, they did not approve that I go without these documents and that's was a real bummer for me" (ESR3).

"We need some kind of documents or papers from the Ministry of Education. When I worked in my own project, not this EDiTE, I had a lot of difficulties in collaborating with the universities" (PO1).

Hurdles of not having some parts of the administrative procedures prepared or the slowness of bureaucratic procedures at the universities was often reflected by researchers as something that needs more attention. This is a notable issue particularly for project such as EDiTE which are strictly time-bound and highly intensive.

5.10. Heavy workload

As noted through interviews, one of the difficulties in developing full collaboration was connected to the lack of interest from the partner organization. According to the interview findings of heads and administrative personnel, some partner organization were not interested in developing cooperation with the universities beyond the initial contract. This often came with the extra time- and workload which for partner organisations was not an easy demand. Even if the teachers wanted to give their time for collaboration, they could not join because of their own work arrangements and heavy job flow.

"We were not always entirely successful. So, for example we lost a partner who just stopped answering us. Maybe because for them it was a little bit more instrumental" (H/A1).

"In most partnership, mainly the school teachers were not willing to provide their time because this required the extra time, of course. And unfortunately, they are giving their extra time, because this is an additional time from their everyday schedule" (H/A2).

"We've had 6-7 organizations, and not all of them were equally involved, I think with two or three of them which we did only the necessary and they weren't eager to cooperate" (H/A4).

Reflecting on the phenomenon of interest is an important segment in partnerships, mainly because it presents the essential element of collaboration. As the head of programme in one university expressed, some of the better partners were actually selected after the Grant Agreement was signed. These partnerships were motivated by a common thread, initiated by researchers themselves instead of heads and administrators of the programme, and nurtured because of the common interest that they identified.

5.11. Lack of resources and lack of training

Limited resources, especially time, is another influencing factor to consider in implementing partnership between university and the organization. In this research, most participants from the universities and partner organizations mention that they could develop deeper cooperation if sufficient time is given and available from both sides.

> *"So, if we were able to establish a contact with the schools which gave more time to engage with us, we could do a lot more not only supporting the schools with their teachers but also with the student teachers for replacing the schools"* (H/A2).

> *"The timeframe was too short. We have to collect materials from other universities and early stage researchers but we don't have time to use them because we only have a short time"* (H/A3).

> *"One ESR was here more than two times and we agreed that the time wasn't long enough to make more observation, more meeting and giving feedback to us."* (PO2)

Furthermore, to communicate with the partner organization, the support from the university (for the researchers) was also an important factor, especially supporting the acquisition of methodological skills. Due to the lack of support in this aspect, the experiences of some researchers during the partnership became unpleasant and reflected poorly on partnership.

> *"I have a lot of regrets in terms of partnership. To be honest I only had a limited knowledge of methodology. So I have to read on my own, and find my way through. It wasn't very easy"* (ESR3).

> *"I struggled with some other things that I don't think my colleagues do, because I am very practice-based and all I want is to collect data, but I also need some methodological basic and foundation. (...) I feel like a lost opportunity for me not being able to observe/absorb all the methodological knowledge. Well, I have one-year courses in this country but it was a lost opportunity as I didn't get the same access to information as my colleagues"* (SFR1).

Better attention to training and better selection of methodological approaches that effectively nurture collaboration between professionals is, indeed, something that was identified as needed. Time and again, researchers pointed out that methodological trainings and time spent on developing skills in choosing the appropriate approach would reflect on deeper collaboration with professionals at school level, but as well on their research satisfaction.

5.12. Lessons learnt and recommendations from the interviewees

Although there were many thought-provoking accounts of ease factors as well as difficulties that hinder school-university partnerships, it is interesting to dig into the nature of spotted insights of different actors of the collaborative work. A particular interest can be raised in sparing of vision on benefits noted by interviewees.

It is very important to mention that the collaborative work leads to open discussion between the researcher and the university as one of the interviewees mentioned:

"Yes, the advantage is that I can give my ideas to the university. My ideas are practice-based and it is a successful one and so, I can help them by showing how the idea is useful. That is an important thing" (PO3).

Researchers also pointed out that it is beneficial to reflect with teachers on their daily experience to understand and improve classroom practices.

"I thought that this video analysis can really improve the assessment practices of teachers. And we can also understand what the teachers are really going through at the classroom level, understand their emotion, their frustration and their experiences, I think. If you sit down with them and really reflect on their lessons" (ESR2).

These reflections included their emotion as well as their frustration that can be challenging at some point but the most important thing is that an open discussion leads to the confidence of teachers of what they are doing well.

"The most important thing is that my teachers began to appreciate themselves. They started to appreciate what they did and it is important because it is not just practice and science and message for Hungary. So, the status of my teachers is raised. They became proud in a positive way. There are some meetings at the university, there were some certain topics and my teachers and I went there and we discussed there how we implement the program and then we discuss and share in the workshop. We could discuss with the other teachers from other schools and the researchers from the schools. This was really good" (PO3).

The interviews also showed that schools are interested in the continuity of the collaboration with researchers as one of the interviewees mentioned that the school principal said:

"Many researchers come to our school and we don't hear anything when they go back. They said our finding will get back to you but they are never coming back" (ESR2).

"Basically, they do not share with us. They observed and visited the schools, and that is it. Only some presentations at ELTE and that is it" (PO3).

On the other hand, researchers consider teachers not only as subjects of their research projects but also as their partners in creating better educational practices and more accurately analysing issues and realities of certain educational practices:

"I stayed in touch with the teachers that I mostly talked with. And they're waiting for me to come and give this presentation to them" (ESR1).

"Some schools even asked me whether I could make a comparative presentation on Bhutan education system and the Czech education system which I did as the request of the principals and the teachers" (ESR2).

Schools can also benefit from the ability to participate equally in the production of knowledge and mutual learning through collaboration with the researchers at higher education institutions.

"One of our researchers had a chance to share with the schools. They had the training seminar coordinated by the school cluster locally and the school asked our researcher to talk in this seminar. More than a hundred teachers can learn with our researcher in the workshop to talk about the issues of big diversity, language diversity and cultural diversity within the school clusters" (H/A2).

"In EDiTE case, one of our researchers clearly did that. They can do more. Once they have finished their dissertation, they will share their finding and also the publication will be shared with schools. But this is not the most effective part. The most effective is that actually working in schools and with the school teachers" (H/A2).

The interviews also indicated that researchers and supervisors developed suggestions based on their practices and collaboration of practices. These reflections included managing tense situations, and, more importantly how to do better in future collaboration with schools.

"(In future) I would have a meeting with everyone, I mean with the teacher team and the principle and the pedagogue. And I would explain to them what I'm doing, that I'm taking notes about their school. Although I have written this all, they kind of misread them. I would probably show them an example of my field notes, maybe also read to them through the process while it takes place" (ESR1).

The researchers also mentioned the importance of learning from experience that can help for future improvement of collaboration as well.

"If I get an opportunity to do my thesis again, in data collection, I would like to do video analysis. A video recording of teachers' classroom and then I want to sit down with teachers and make the teachers reflect with their own lessons and at the same time, I will provide my own reflection, so reflective video analysis is something that I would like to do as an analysis. (…) Another thing is that I want to focus not only on the English lesson but also I would like to focus on the other subjects. So I can get a variety of perspective from all different subject teachers" (ESR2).

Perspectives shared by partners point the diversity of aspects of potentially lasting benefits as well as sustainability and recommendations for the project. However, there were

also excellent points in how teacher education at the university level could change and shape to bring down barriers of theory and practice.

*"I would like to build a teacher education curriculum in which truly practice and theory would intertwine, through research. I would like to have **research focus curriculum of teacher education**. I want research to be integrated into teacher education, so that teachers are researchers. I think this is the best way for teacher development, I think this is the best way for teacher professionalization, and this is through continuous research. This breaks down the barriers, the false barriers between academia and the world of practice, and this kind of snobbism of academia which is based on nothing"* (H/A1, emphasis added).

And some of the practical pointers for implementing such a programme were shared here:

"In my classes I teach them [student teachers] how to do research. [...] I built a seminar around the last year of their studies and I connect it with their practical training and they need to do action research. So, in the first semester of their last year, the future teachers need to go to schools and observe practicing teachers and in the second semester they have to teach too. I built this though the action research cycle, so when they did observations they learn how to do curricular observations and how to do ethnographic diaries. Then we do group reflections, and then they would prepare an action research project for when they would teach in the second semester. I would ask them to target the problems that they saw in the class through the ethnographic observation in their action research and practicum. And then they would write their BA thesis based on this" (H/A1).

Such integration of practice, skills development and theoretical knowledge is quite well though through, especially since most of the teacher practicum at university level is not reflected further and beyond student diaries and reports. Having a full understanding of an educational issue through an approach such as ethnographic observation, reflecting on it in a joint manner and developing the practicum based on the observation is a well-established holistic way to train future teachers, and having the BA thesis based on this experience and understanding can just solidify the tacit knowledge that usually remains unspoken of.

Conclusions

This research pillar aimed at discovering the nuanced elements of school-university partnerships based on the example provided by EDiTE. Having institutional partnership as one of the core elements of its establishment, EDiTE provided a rich field for exploring the phenomenon from aspects of university leaders, supervisors and administrators, as well as from early stage researchers conducting their research in the sphere of teacher education and, respectively, the teachers and leaders of partnering schools. The qualitative methodological approach allowed for a deeper level of inquiry into the essential elements of the relationships that each of these actors has established, thus providing a valuable overview of stimulating and hindering factors.

In a nutshell, it was noted that the most mutually beneficial and lasting cooperation develops only when the primary actors, the researcher and the practitioners, have reached and

realised that they have a common interest. Yet, the official agreements along with the details of the collaboration are set by the leaders and administrators of the institutions and this can in some cases be helpful but in some cases harmful, especially if the partnership leads to dissatisfaction. In projects such as EDiTE, these agreements are part of the Grant Agreement and they usually can only anticipate the future collaboration at the implementation level. In this way, the results and the satisfactions of the signed agreement is no more than a promise. However, in several cases, it was clear that when these agreement details match the level of interaction between school practitioners and university researchers, they do become a very valuable tool of knowledge exchange and mutual support. This is even more enhanced when researchers and practitioners initiate the contact and request for a more formal agreement. There is some evidence from this analysis that the research approach plays a very important role, hence qualitative, ethnographic and action-based research lead to better institutional links. Furthermore, how research is seen by institutions is also an important factor, thus both schools and universities need to have a well elaborated integration of research into teaching practice in their own organisations. Finally, the key element, of course, is the mutual interest and discovery of a need for a collaboration.

References

Hargreaves, D. H. (1999). The Knowledge-Creating School. British Journal of Educational Studies, 47, 122-144. http://dx.doi.org/10.1111/1467-8527.00107

McLaughlin, C. (2006). *Researching Schools: Stories from a Schools-University Partnership for Educational Research* (1st ed.). https://doi.org/10.4324/9780203086100

McLaughlin, C. (2008). *Networking practitioner research.* London, New York: Routledge

School-based partnerships in teacher education. (2018). New York, NY: Springer Berlin Heidelberg.

Stoll, L. and Louis, K.S. (2008). *Professional learning communities: divergence, depth and dilemmas.* Maidenhead: McGraw-Hill/Open University Press

Tsui, A. Edwards, G. Lopez-Real, F.J. and Kwan, T. (2009). *Learning in school-university partnership: sociocultural perspectives.* Retrieved from http://public.eblib.com/choice/publicfullrecord.aspx?p=359060

A MULTIPLE-CASE STUDY RESEARCH INTO SCHOOL-UNIVERSITY PARTNERSHIPS IN EUROPEAN AND ASIAN CONTEXTS: THE CASES OF MYANMAR, SPAIN AND HUNGARY

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ABSTRACT

School-university partnerships have provided a means to address several challenges in the education system. These types of partnerships are greatly affected by the context and factors such as educational structures and level of engagement of the stakeholders. This study investigated four case-study school-university partnerships: two in Myanmar, one in Spain, and one in Hungary in order to establish those elements which stakeholders (student teachers, teachers, mentors, school administrators, project leaders, and university researchers) perceived make the partnerships successful. Data comprised a range of documents and semi-interviews with stakeholders (N=19) were analyzed thematically in two rounds. First, the effectiveness of partnerships was measured by the degree of presence of four themes identified in the literature as key factors: (a) Stakeholders engagement, (b) Teacher learning outcomes, (c) Enabling networks and partnerships (d) Program sustainability. Second, data was re-analyzed in order to identify additional elements considered by participants to support the successful execution of school-university partnerships. This identified further themes comprising: trust and openness to change. Building upon these, suggestions for further research to contribute to the improvement of school-university partnerships are offered.

Keywords: school-university partnership, teachers' professional development, Myanmar, Hungary, Spain

1.Introduction

In the frame of the School-University Partnership research, the current project aims to answer the following question: What elements make a school-university partnership successful based on the perception of the stakeholders? Four international cases have been explored in order to create a comparative analytical framework of these type of partnerships around the world. The case studies were selected on the basis of their accessibility (physical reachability, language, etc.) for the researchers. Having an international team from Europe, Asia and Latin-America, two cases from Myanmar, one from Spain and one from Hungary were selected.

The selected cases have been processed using an analytic approach as opposed to the problem-oriented approach. The analytical approach does not identify major problems or provide recommendations on how to fix them but is used to examine a case and to determine what has happened and why this has happened". (Monash University, 2019).

When planning the case studies, the theoretical method of using minimal theoretical assumptions has been applied.

The first case study presents a national level primary school curriculum reform in Myanmar and the teacher training that goes with it. The second case is about a national reform of initial teacher education in the same country. The third case analyses the national practice of continuous professional development of teachers in Spain. The fourth case is about a Hungarian

project developed by a university-based research group with the active involvement of school teachers in the topic of open content development in vocational education.

In some cases, reciprocal benefits for participating schools and higher education institutions are observed, while in some other cases the benefit is more obvious at the level of the schools or universities. This study intends to identify the key elements that make a school-university partnership successful.

2. Literature Review

School-university partnerships are an important part of schools' development and a valuable source of information for university researchers. In the following lines, the definition, importance and elements that make partnerships successful are described.

2.1. Review of School-University Partnerships

School-university partnerships have been defined in several ways over the years. For Burton and Greher (2007), these partnerships are programs between schools and universities established with the aim of improving the quality of teacher education and facilitate the best output from the students (2007). For Stephens and Boldt (2004) is a joint agreement done with the purpose of improving the quality of teaching and learning by closing the gap of theory and practice among key stakeholders like schoolteachers, teacher educators and researchers by doing academic research intended to support teacher practice.

By linking theory and practice, school-university partnerships have revealed to improve teacher learning through enhanced trainings, supported practicums, and facilitation of research based on the real-time challenges and problems of practice.

The programs vary in different cases among different types and number of schools, and so do their goals, objectives, and accompanying services. The proponents of school-university partnership acknowledge that learning institutions cannot progress in isolation and hence should strive to form external collaborations that assist teachers in improving their practice (Brandy, 2002).

The development of *expert teaching* in the teaching profession can be achieved in many ways and the effectiveness of the various efforts, strategies and techniques should be implemented as early as possible during teachers' training, these includes training alternatives provided by school-university partnerships. Gilles, Wilson and Elias (2009) highlighted the importance of the first few years of teaching for professional development and the need for placing teachers in conducive and supportive environments that facilitates less questioning of their abilities as professionals and enhance a sense of satisfaction in their work. Higher education institutions such as universities can intervene at the early stages of teaching to offer opportunities for critical thinking and diversity in professional development. Furthermore, it has been ascertained that the basic blending of theory and practice has not been sufficient enough for professional development of teachers during practice hence the need for more efforts in enhancing teacher's capabilities in interpretation and application of the acquired knowledge (Bebas, 2016).

In an effort to improve on the labors being made to bridge the gap between theory, practice and current research, schools have reached out to higher education institutions and more refined partnerships with universities have been established to improve the quality of education and learner outcomes. The role of these partnerships has been emphasized by Darling-Hammond (2010) as critical to transforming teaching through "state-of-the-art practices" especially in schools and communities where students are typically underserved or marginalized (p.43).

2.2 Rationale behind the partnerships

Nowadays, there is a clear effort made by schools and universities in order to bridge the gap between theory and practice; schools have reach universities to improve education while universities acquire first-hand information about "state-of-the-art practices" (Darling-Hammond, (2010, p.43) Halasz (2016) mentions the two major motivations for the development of school-university partnerships; one, as the need for research, innovation and development and the second as the necessity for professional development of teachers alongside continued teacher learning. McLaughlin and Black-Hawkins (2007) mention that particularly in Great Britain, school-university partnerships are the answer to the "gap between practitioners and researchers" (p. 238). Also, Ng and Chan (2012) note certain benefits of these type of partnerships such as development of teacher education programs, betterment of learning opportunities, increased awareness of the importance of research and an increase of partnership and networking opportunities between the school and the university.

From each side perspective, universities gain by getting data for their academic-related research projects from the schools. Researchers also get valuable opportunities to apply scholarly knowledge as well experiment more on contemporary issues affecting teacher learning and professionalism. Moreover, by partnering with community members throughout the research process, universities can better address community-identified needs and produce innovative research that has measurable, real-world applications and impacts (Berg-Weger et al. 2007). It is by understanding the circumstances and experiences of schools by being on the ground or getting firsthand data that forms the basis and framework for translating research into practice, hence the success and effectiveness of the programs (Holton, Jettner & Shaw, 2015).

As for the schools, the benefits are accrued by the teacher and passed to the students. According to a study by Gilles, Wilson and Elias (2009) interactions among teachers, mentors, and students through classroom observation produce various advantages such as immediate assistance from the mentors and also amongst themselves, exchange of curricular ideas that brought "freshness to the building" and professional nudging where even the veteran teachers felt the urge to teach better due to the presence of and integration with the professionals (p. 108). Similarly, reports of adoption of pre-service and in-service teacher training were found to enhance professional growth of teachers through support and assistance leading to better student outcomes. Generally, the mutual interest and bridging of the gap has been found to bring about substantial school and professional development in all case studies despite the challenges associated with the partnerships (Ng & Chan, 2012).

2.3 Elements of successful school university partnerships

Through a careful examination of the pertinent literature (i.e. sixteen research articles and books), four elements necessary for the success of school-university partnerships were identified: a) Stakeholders engagement, b) Teacher learning outcomes, c) Enabling networks and partnerships and, d) Program sustainability. These elements were the most commonly found as decisive in the success of the partnership in the literature. The authors acknowledge that a broader examination of SUP related academic material was necessary (i.e.revision of a higer number of articles and books) time constraints didn't allow it.

Table 1. Articles supporting SUP success elements

Element	Authors
a) Stakeholders engagement	Mohr & Spekman, 1994; Stevens, 1999; Peel, Peel & Baker, 2002; Stephens & Boldt, 2004, Fisler & Firestone, 2006; Burton & Greher, 2007 McLaughlin & Black-Hawkins, 2007, Gardner, 2011; Walsh, & Backe, 2013;
b) Teacher learning outcomes	Stevens, 1999; Sandholtz, 2002; McLaughlin & Black-Hawkins, 2007; Fisler & Firestone, 2006; Burton & Greher, 2007 Allen, Howells, & Radford, 2013; Walsh, & Backe, 2013; Hoppey, 2016, Magiera & Geraci, 2014
c)Enabling networks and partnerships	Stevens, 1999; Marlow, 2000; Peel, Peel & Baker, 2002; Stephens & Boldt, 2004; McLaughlin & Black-Hawkins, 2007, Gardner, 2011;
d) Program sustainability	Stevens, 1999; Miller, 2001; Peel, Peel & Baker, 2002; McLaughlin & Black-Hawkins, 2007, Gardner, 2011; Walsh, & Backe, 2013, Magiera & Geraci, 2014

2.3.1 Stakeholder's Engagement in School-University Partnerships

There are various stakeholders involved in School-university partnerships and their engagement is crucial if the partnership programs are to succeed. The term stakeholders refer to individuals or groups which have vested interest in a certain cause, decision or a project (Hemmati 2002). Stakeholders also includes any group, or anyone impacted by the achievements of the organization's objectives. In a school-university partnership, stakeholders are those who have vested interest in the success and welfare of a school or education system and include parties from both the university, the school involved and the community at large (Sanzo & Wilson, 2016).

Stakeholders' engagement refers to the information exchange process, listening to and learning from stakeholders through consultation, informing or direct participation and involvement (Leal Filho & Brandli, 2016). Engagement can involve one or multiple stakeholders at once with the latter being the most diverse arrangement in many partnership networks. The engagement of stakeholders not only contributes to the kind of sustainable development from which organizations, their stakeholders and wider society can benefit from but also serves to drive the strategic direction and operational excellence for organizations, (Unerman et al. 2010). According to DiBari (2016), the authenticity of the engagement should be guided by literature's definition as one where "the participants will be educated about the larger systems at work, be aware of their individual needs, and know how these things connect to facilitate their participation and consequently changes in the processes" (p. 11).

Various studies have explored the concept of stakeholders' engagement in school-university partnerships. Sanzo and Wilson (2016) emphasize the importance of the stakeholder theory research that draws on sociology, economics, politics, and ethics to guide the actions of stakeholders in collaborative partnerships. In addition, DiBari (2016) presents engagement as vital element in decision making, diversity and change by drawing on Organization Change Management, Collaborative Governance, Adaptive Change and Critical Pedagogy theories. Models such as the comprehensive school reform (CSR) model, the Comer Process and the National Partnership Schools model also support stakeholders' engagement as a pathway to positive school climate and student academic achievements (Slavin, 2008; Lunenburg, 2011).

The benefits of stakeholders' engagement vary from the consequential enhanced decision making and participations to better student outcomes. Leal Filho and Brandli (2016) found stakeholder engagement leading to more efficacy and production as well as fostering equity and less conflicting situations. Empirical studies have shown that engagement of stakeholders has led to significant progress and improvements in school climate and academic achievement (Dibari, 2016). Universities on the other hand utilize the engagement to better understand the market condition, broadcast their services, courses and reputation, notifications and awareness of on-the-ground challenges facing the schools and communities, and get a chance to establish trust and long-term collaborative relationships (Bal et al. 2013).

Nevertheless, there are various ways in which stakeholders' engagement can be enhanced. An important aspect of the stakeholder's theory is that the interests of legitimate stakeholders are of intrinsic value and no single set of interests prevails over others (Wagner Mainardes, Alves & Raposo, 2012). This calls for consideration of each of the members' contribution to the partnership programs. Moreover, Getha-Taylor (2012) asserts that problem solving in the context of partnerships rests not on traditional authority structures and systems but on the foundation of relationships and trust. Leal Filho and Brandli (2016) summarize the essentials for effective engagement as "effective listening, openness, dialogue, availability of resources, integration and collaboration, leadership commitment, understanding of needs, systemic thinking, capability to deal with environment, market volatility and ambiguity" (p. 2014).

2.3.2 Teacher Learning Outcomes in School–University Partnerships

The successful development of a partnership program is only possible if its achievements at the end can be clearly envisioned. As a result, the use of learning outcomes, the outcomes-based approach is becoming more popular and is being applied in the development of school university partnerships (Gosling & Moon, 2001). Learning outcomes describe the measurable skills, abilities, knowledge or values that student teachers should be able to demonstrate as a result of a completing a certain course. Not only does learning outcomes direct the content and design of a unit of study, but also form the basis of assessment and linkage to the larger outcomes of learning set by the university (Kennedy, 2006). Unlike learning objectives which are expressed as intentions, teacher learning outcomes clarify intention, are performance-oriented and signal the desired level of performance (Furco & Billig, 2002).

For effectiveness, when designing and outlining teacher learning outcomes, stakeholders ought to consider a variety of factors. For instance, outcomes should focus on equipping the teacher with both knowledge and cognition. Knowledge should entail different kinds such as Biggs (2011) array of declarative (knowing what), procedural, (knowing how), conditional (knowing when), and knowing how to apply the three. The university is also responsible for determining the most appropriate knowledge set that is relevant to the discipline which is being taught and the prospective lessons the teacher is likely to teach in the schools (Biggs, 2011). Moreover, learning outcomes should include the inculcation of appropriate cognitive skills such as those proposed in Bloom's *Taxonomy of Educational Objectives* (Knowledge, Comprehension, Application, Analysis, Synthesis and evaluation) as well as practical and generic skills for effective pedagogy (Krathwohl & Anderson, 2009)

Teacher learning outcomes in the school-university partnerships are important in several ways. Firstly, it helps university researchers and teacher educators in designing content to teach and the appropriate teaching strategies. Pritchard (2017) notes that by clearly outlining the expectations of a certain teacher learning program, stakeholders are able to actively engage to come up with the most appropriate teaching strategies that have been experimented upon and their effectiveness established. Secondly, teacher learning outcomes enable teachers to decide

which partnerships programs are more suitable for them, this aspect can clearly affect the teachers' voice while choosing to support a program over another.

Thirdly, the outcomes also help in writing assessments and evaluations. Furthermore, an evaluation of the progress can even be done midway and the effectiveness of the unit established allowing for re-adjustment of strategies to realign with the partnership goal (Boud & Falchikov, 2006). Last but not least, teacher learning outcomes are used by stakeholders, especially those assigned with oversight in accrediting the proposed partnership programs. According to Pritchard (2017), the overseers use the learning outcomes alongside other tools to assess how the course or programme has been structured, and whether the course / programme meets the mission and goals of respective institutions depending on the nature of the partnerships.

2.3.3 Enabling Networks in School–University Partnership

The application of networks in partnerships and collaborative relationships have proved to be powerful mechanisms for implementing changes in education systems for the past decades (National Research Council, 2015). It is through networks and collaborative partnerships that sharing of expertise and strategies has been possible in professional development programs and courses of school-university partnerships. As such, stakeholders should create opportunities for collaboration and systematically support opportunities that allow teachers to network across districts, schools and universities and relevant experts so that enabling partnerships can be established (Lieberman & Miller, 2001). Furthermore, respective education leaders should be aggressive in the identification and building of networks across national, regional, or local levels to enable stakeholders to collaboratively solve problems and learn from others' implementation efforts.

Various configurations of networks exist depending in the nature of partnerships and collaboration among schools and universities. Most networks include people working within school systems, among schools and external partners or can be among teachers across schools and districts, or even within schools across grades (National Research Council, 2015).

Literature also describes types of networks that have been established in the context of school university partnerships. Lieberman (2000) describes education reform networks that are "organized around the interests and needs of their participants to accommodate the changes in education systems as a result of technology and competence demands (p. 221). Baker (2011) applies Mintzberg's framework for organizations to partnership networks to classify partnership into three network configurations namely single tier, multi-tier and complex brokered. In single tier systems, collaboration is between university professors and classroom teachers while in multiple tiers, has been extended into participants from other schools and district officers. As for the complex-brokered, the university leaders incorporate external experts who work with both the university and school participants.

There are a variety of features that networks should possess for effectiveness. Coburn et al. (2012), asserts that effective networks are characterized by strong ties created through frequent interaction and social closeness that focuses on underlying pedagogical principles of teacher education. In addition, networks should have access to resources and expertise to facilitate their growth and development. Lieberman (2000) also notes that for networks to survive, they should be flexible, responsive to their participants, and be continually learning and reinventing themselves to fit into the dynamic education world. Since networks incorporate stakeholders with varying methodologies of knowledge acquisition, development and usage, effective networks should also have a balance between the experiential knowledge of the teacher and that being brought by external partners mostly from research. Penuel and Riel (2007) draw from earlier studies that effective networks use external expertise and have

multiple meetings across different functions in the school to give participants different perspectives on professional development aspects.

Having an enabling network is beneficial in several ways. According to Dresner and Worley (2006), having enabling networks is helpful in supporting implementation through sharing of strategies especially where the schools have challenges in common. Through such networks, teachers share ideas about teaching, learning, and assessment, difficulties; strategies for managing learning groups; and tips for using technology (Coburn et al, 2012; Penuel & Riel, 2007). The resultant effect is a sense of community among teachers, improved teacher efficacy and facilitation of quality continuous teacher learning based on the best practices. In addition, the networks also facilitate sharing of resources among the participants of the partnerships where facilities and structures can be used by more than one school by having groups from various programs using the same resources. Furthermore, institutions can come together and pool resources since different partners are endowed differently in terms of resource and expertise (Weiss and Pasley, 2006).

2.3.4 Sustainability in School-University Partnerships

When designing and developing school university partnerships, studies have emphasized on the need to consider the environmental, social and economic impact of the partnership programs hence their sustainability (Gimenez, Sierra & Rodon, 2012). Sustainability of these partnerships has been an area of focus by several studies (references) as the wheel for successful program implementation of the objectives and goals of both pre-service and in-service teacher education with minimal repercussions to respective stakeholders and the community at large. Different authors have presented varying perspectives on sustainability such as maintaining the health benefits of a program over time while building the capacity of the community involved, (Israel et al., 2006), creating long term relationship with the communities (Barnes et al., 2009) and sustaining relationships, knowledge and funding of the partnerships.

Several key areas and concepts have been reported to facilitate sustainability of partnership programs. These include: the level of commitment to healthy relationships, availability of resources, quality of leadership, quality of communication and engagement of stakeholders, policies and utilization of knowledge gained (Israel et al., 2006; Williamson et. al., 2016). Furthermore, drawing from literature, Northmore and Hart (2011) advocate for certain characteristics that sustainable partnerships should be based on. These include having genuine reciprocity within the partners and their respective stakeholders characterized by respect and mutuality, a creative approach to partnerships, mutual learning that takes into considering the interdisciplinary span of professional, artistic and academic aspects as well as "diverse cultures, languages, ages and abilities" (p.8), and funding for the projects.

Even though other studies (Magiera & Geraci, 2014) also show that sustainability of partnership has improved with the increasing attention being given partnership programs, the field is still permeated with challenges. One of the main challenges has been in maintaining healthy and committed relationships which is attributed to causes such as lack of time, inequity of resource allocations, and low morale among employees due to funding issues and inconsistency of members participation (Israel et al., 2006; McLaughlin & Black-Hawkins, 2007). Another challenge is in sustaining knowledge, capacity and values among the partnership participants and with the local communities due to limitation of resources and lack of broader awareness by the participants (Israel et al., 2006; Northmore & Hart, 2011; Suarez-Balcazar, Harper & Lewis, 2005).

Lack of funding and limited availability of resources has crippled partnerships programs at their different stages of development to an extent some even never saw their launching (Bullough & Baugh, 2008). Without adequate resources, both the internal and external structure

of the partnerships programs is frail and result to lower morale among the staff and consequent lack of commitment.

Sustainability can be enhanced by addressing the challenges and hindering factors that have been identified as well as the potential threats in the 21st century. Enhancing communication, building new relationships and mutual collaboration has always been the main theme in fostering success of school university partnerships (Maheady, Magiera, & Simmons, 2016). This can be achieved by enhancing an interplay of trust and mutual respect of setting and stakeholders, establishing adequate communication patterns that accommodate elements such as ethnicity, age and technology and respecting human diversity (Barnes et al., 2009). To sustain knowledge capacity and values, participants should establish a culture of mutual learning where each stakeholder is open to learning new experiences and knowledge (Suarez-Balcazar, Harper & Lewis, 2005). Other strategies include increasing sustainability literacy and competence to foster a broader understanding of sustainability among stakeholders (Withycombe et al., 2018). Moreover, funding of internal and physical infrastructure, availing bridging and long-term funds through partnership with larger organizations and private foundations can help alleviate the problem of funding. Last but not least, Barnes et al. (2009) emphasize that school university partnerships should be built on a developmental framework that allows mutual transfer of sustainability solutions between the universities and the schools undertaking the various forms of partnerships and collaborations.

2.4. Purpose of this research

This study intends to find key elements that make a school-university partnership successful. The SUP programs have undergone changes since their inception when the programs were simply joint collaborations between public schools and educational colleges training teachers (Zenkov, Shiveley & Clark, 2016). As such, this study also considers how the changes and improvements have facilitated teacher learning. In particular, this study will consider the learning, challenges, opportunities that the partnership programs encounter.

3. Multiple case study methodology

The use of case study as a method of data collection has been a very popular method of research methodology especially in the sociology circle. Case studies are commonly used to collect in-depth data in a natural setting but are not used in determination of cause and effect, nor are they are used to discover generalizable truths or make predictions (George, 2019). Rather, researchers focus on the exploration and description of a phenomena (the case) as careful and complete observation of the case is done, efforts are made to study each and every aspect of case in minute details and then from case data, generalizations and inferences are drawn (Baxter & Jack, 2008).

This study used the multiple case study design, which is a research methodology in which several instrumental, bounded cases are examined using multiple data collection methods. This research methodology provides more extensive descriptions and explanations of the phenomenon or issue than a single case study (Mills, Durepos, & Wiebe, 2009, p.0)

The essence of a multiple case study is that cases, however meaningful they maybe on their own, require an integration or affiliation to other cases for easier and further understanding as well as application by other researchers into their studies (Rowley, 2002). This basis and structure of the multiple case study is explained in detail by Stake (2013) through the term "quintain" which explains the role and place of a unit case study in a multiple case study. Gustafsson (2017) defines multiple case study as an intensive study aimed to generalize over several units with the researcher being based on a unit and the quintain is the collection of these

target collection of the several cases under study with the understating that no case can occur in isolation and that "any case would be incomprehensible if other, somewhat similar cases were not already known" (Stake, 2013, p.4). In this study the quintain is the effectiveness of school-university partnerships

Nevertheless, it is essential that researchers understand the drawbacks and constraints of the multiple case study as they choose between the multi-case and single case methods. Gerring (2004) warns that while more cases increase the confidence in the case study research, it also means less observation time for individual cases hence reducing the strength of the data. Other shortcomings identified include temptations to veer off the focus of the research and presenting the findings of the report (Gustafsson, 2017). The data gathered by the case studies was examined through thematic analysis which defined as a method for identifying, analyzing and reporting patterns (themes) within data (Braun & Clarke, 2006, p. 79) allowing the interpretation of several aspects of the research topic.

3.1 Procedure

Three different contexts of teacher education programs were examined, two in Myanmar, one in Spain and one in Hungary. These projects were selected on the basis of accessibility since the members of the research team belonged to these countries. The interviewees pool was delimited based on their approachability using the snowballing method, mainly teachers, student teachers, project leaders and administrative staff were targeted. For the literature review a wide range of scholarly sources such as journal articles, books and theses were examined. Also, variety of documents such as: handbooks, project materials, legal documents, laws, etc. were analyzed.

Semi-structured interviews were carried out with stakeholders of the selected cases. The description of the interviews is in the following table. (Matheus, Saunders & Chakraborty, 2017)

Table 2. Interview participants in case-study organizations

Case	Organizations	Number of Respondents	Average duration of interviews	Example roles of interviews across cases
Case study 1. **Myanmar (1)**	University	4	20 minutes	• Teacher educators • Student teachers
Case study 2. **Myanmar (2)**	Government School University	3	45 minutes	• Teacher educator • School teacher • University lecturer
Case study 3. **Spain**	Teacher training center Elementary school	3	40 minutes	• Teacher trainers • Teachers • Centre leaders
Case study 4. **Hungary**	School (countryside) School (city) University Teacher training center	8	50 minutes	• School teachers • Principal • University project leader • Project Manager • Head of Teacher Training Centre

3.2 Data analysis

Data was analyzed in two rounds. First, there was a round of identification of evidence of the themes present in the literature: (a) Stakeholders engagement, (b) Teacher learning outcomes, (c) Enabling networks and partnerships (d) Program sustainability using the thematic analysis method (Braun & Clarke, 2006). Second, the cases were re-analyzed using the template analysis (King, 2012, Matheus, Saunders & Chakraborty, 2017) Initial lower codes (sub-themes) were developed from interviews and document analysis. These lower codes were analyzed to create higher-order codes (themes). Subsequently a cross-case analysis (Khan & Van Whynsberghe, R., 2008, Yin 2014) was done to combine, contrast and link the initial findings for the subsequent identification of patterns. Finally, the new themes identified in one or several cases were tested and either confirm or disregarded using segments of the data from other cases (Matheus, Saunders & Chakraborty, 2017).

4. Case studies

The following lines intend to represent a brief overview of the structure of teacher education in Myanmar, Spain and Hungary, the areas that form the context for the development of this research including lower, upper and VET education.

CASE 1: Collaborative Partnership in Teacher Training for New Primary Education in Myanmar (summary)

Background of the Study

The CREATE Project (The Project for Curriculum Reform at Primary Level of Basic Education in Myanmar) was launched in 2014 for developing new primary education textbooks, a new national teacher' guide, changing assessment practices and introducing new primary education to in-service and pre-service teachers. The project purpose is to implement educational activities in accordance with the new curriculum of primary education at schools and teacher training universities. The project scope is nationwide.

Training Process of the Project

The *New Grade 1* curriculum and its textbooks developed by the Ministry of Education (MOE) with support of the Japanese International Cooperation Agency (JICA) was introduced in AY 2016-2017. Approximately 1.3 million *new grade 1* primary school students across the country use these new textbooks. Changes in the curriculum for Standard 2 students followed in 2018-2019, and Grade 3 will implemented in the 2019-2020 period.

In preparation to the introduction of the new curriculum, JICA supported technically a series of trainings, while MOE took the responsibility for deliver them. The initial training phase was delivered in January 2017 by *Supervisor Trainers* for education officers of townships, districts, and states/regions, and the ministerial officials from the concerned departments at the Central level which was closely followed by the nation-wide In-service Teacher Training (INSET) to introduce the new curriculum to in-service teachers (23 January - 26 May) in a 4-layer-cascade approach: central training, state/region level training, district/township level training, and school family level training (JICA, 2016).

Impact of Collaborative Partnership on Teacher Learning in Training Project

Methodology

The aim of this study is to explore the impact of the partnership on teachers learning in the context of a national training project. This study uses a descriptive case study approach. As data collection method, semi-structured interviews were conducted. Two participants were interviewed for this study. The first one is a teacher educator from an education college who participated as a trainee at central level of the training project and as a trainer at the state/regional level. The second interviewee is a school teacher who received three-months of teacher training and became a primary teacher due to shortage of qualified teachers, with the aim of covering the trainers and trainees at the central, state/region, township level and school level. Additional data included the exploration of policy and project documents using the data analysis approach.

Impact of Collaborative Partnership on Teacher Learning in Training Project

Interviewee 1

One of the participants is a teacher educator from one education college. She is an assistant lecturer from Department of Educational Theory of one Education College and gave her impressions of the program implementation:

The interviewee said:

> *"I played the role of trainee at the central training and delivered the training at the state/region level training as trainer and received five day-training; two days for general contents of the new curriculum and preparation of trainers for the state/region level and three days for the content structure of each particular subject of the curriculum and how to implement it in the classroom. Generally, the training was well prepared. During this training, I got good support from the central trainers and found that the Japanese experts observed the central training session and gave constructive feedback, comments and suggestions during and after the central trainers conducted the training. At the state/division level training, I played the trainer role. In delivering the training, I had limited time, and in some cases, equipment failure. In new assessment system, it emphasizes both on formative and summative assessment. Assessment techniques such as observation, questioning, student learning journal, open-ended questions are used rather than paper and pencil tests and it assesses 21st century skills and soft skills such as 5 C's (Collaboration, Communication, Critical thinking and Problem solving, Creativity and Innovation and Citizenship). I like this kind of assessment system and have no challenges to use this."*

Interviewee 2

Interviewee no. 2 is a primary school teacher who's a novel one with only three-months of teacher training and became a primary teacher due to shortage of qualified teachers. She received the township-level training for primary education curriculum from township level trainers and implemented it at the classroom level.

The interviewee said:

> *"I could learn a lot at the township level training. The township education officers and headmasters/headmistress supported a lot. For example, teaching aids and real classroom settings for practical teaching of training were supported. Moreover, they visited and observed the training sites and supported as needed. The trainer support was satisfactory for some subjects such as Myanmar language and English language but was unsatisfactory for some subjects such as Arts (Visual and Performing Arts). Some teacher trainers had no confidence to demonstrate some activities such as playing musical instruments and dancing. The training was delivered in summer vacation. I could not concentrate fully due to the extreme heat."*

Discussion

In the first case of central level training, it is found that the collaborative partnership could not effectively improve the creativity in trainees' learning. The reason for that is that during the training, the trainers just focused on the transmission of the fixed training plan. Moreover, the trainees at the central level are the teacher trainers from the education colleges and until now, the education college curriculum hasn't been reformed. It can be said that the school teachers, the practitioners, improve their learning through the partnership support in the training. It may be because the school level teachers needed to implement the new curriculum in the real classroom, applying the experiences obtained from the training. Moreover, we can see a contradicting result from two cases. One interesting question is arising. If the trainers didn't significantly make difference in learning, then how could it make differences/improvement

in school teachers' learning (at down level)? The reason could be twofold. The first one is the sample size. For example, an interview where only two cases were considered (one teacher educator and one school teacher). The second is that the teacher educators already have knowledge and experience with innovative pedagogy and the training plan is fixed. So, any special changes could not occur in teacher educator's learning. For a school teacher, without receiving adequate teacher training, she became a primary school teacher as needed. Therefore, the training project (CREATE) could significantly affect school teachers' learning.

CASE 2: School-University Partnership in Initial Teacher Training: A glance at the current collaboration between Teacher Training Universities and Schools in Myanmar (summary)

This case study examines the nature of collaboration between schools and universities under the Ministry of Education in Myanmar, within the specific context of student teacher training. The collaboration between two teacher training universities and the schools for initial teacher education are considered as the scope of the case study. This case study aims to examine the collaboration between teacher training universities and schools, in specific context of their practical teaching within the university program, from the point of view of university and student teachers.

Background of the study

Myanmar which had experienced the long-term decline and stood at the bottom among ASEAN countries in education (Borg, Clifford, & Htut, 2018), the country is now trying to update and follow the challenging knowledge age through various reform and numerous collaboration with national and international organizations. One of the obvious emphases to improve the education system can be found in initial teacher training program by upgrading the courses and curriculum offered by the universities.

Methodology

This study aims to study the collaboration culture and system between the universities of education and basic schools from the perspective of training pre-service teachers. This study uses a descriptive case study approach. The data was collected using semi-structured interviews. In this study, one teacher educator from methodology department and two fifth year students were selected. The reason for the interviewee selection is their block teaching experience. The data collected was transcribed verbatim and analyzed using an inductive method.

Objectives

The major aim of this case study is to study the current collaboration culture and system of the two teacher training universities and schools for the purpose of cultivating the qualified prospective teachers. The specific objectives of this case study are:
1. To study the procedures of placing student teachers to practical schools (which methods or consideration they used to place the student teachers, etc);
2. To examine the feedback system and assessment procedure given to student teachers after they finish their practical training;
3. To investigate the closeness between the partners (universities and schools).

According to the objectives, the case study will be conducted by looking into the system of two training universities in Myanmar.

Overview of the current collaboration between teacher training universities and schools in Myanmar

The vision of the Ministry of Education is "to create an education system that will generate a learning society capable of facing the challenges of the Knowledge Age" (Ministry of Education, Myanmar, 2011). In order to achieve and implement this vision, "reforming and investigating of the education system, especially the teacher education system, is needed to be considered as an essential component to improve teaching and learning throughout the whole country". Since then, the two teacher training universities become the most important starting point as the source of education.

Since the establishment of the universities, there has been systematic arrangement of the practical teaching for initial teachers at the two universities (Interview with teacher educator). The universities give a demonstration of teaching before the student teachers do their teaching in third year. Peer group teaching (PGT) is also held by the methodology of department for training the prospective teachers. Before the fourth year practical teaching, the student teachers receive a lot of training and experiences through observation of teacher educators' teaching, their PGT and observation to practicing high schools during their five year of studies.

Specific focus in this case study: Two Teacher Training Universities

Two teacher training universities are called Yangon University of Education and Sagaing University of Education where Yangon University of Education is responsible for the lower part of Myanmar and Sagaing University of Education for the upper part of Myanmar to give the necessary qualification for the prospective student teachers. Teacher training universities are organized with three education departments and academic departments. Three educational departments include Educational Theory department, Educational Psychology department and Methodology department. Academic departments deliver different science subjects and art subjects to the student teachers.

Practical Teaching or Block Teaching

During the five year of studies at the universities, student teachers have the practicum teaching in their third and fourth year. In the practicum, university student teachers are assigned to teach secondary students at Basic Education High Schools. After the academic study of third year at the university, during the summer holidays, student teachers do their practical teaching at their selective schools. Student teachers are free to choose any schools that they want to do their practical teaching during this summer holidays. Most of the student teachers do their practical teaching at the schools in their native towns because they are going back to their native towns during the summer break. This third year practicum teaching period is only about one month, but if the schools want to accept student teachers more than one month, it is possible for two months practicum. (Interview with teacher educator from methodology department)

Unlike the third-year practicum, in their fourth year at the university, the student teachers are assigned to the respective schools for practice teaching by the department of methodology based on their respective subjects. A group of student teachers (eight to fifteen) are assigned to school according to their academic subjects taken as their major subjects at the university. These schools where the student teachers are assigned already have connections with

the universities since the schools are located in the downtown area and so are convenient for transportation and communication. (Interview with teacher educator who is in charge of arranging practical teaching at methodology department)

Research into collaboration between schools and universities: Interview results

This section will present the description of current collaboration between universities and schools from the point of view of teacher educators and student teachers.

Placing of student teachers at schools

According to interviews with two educators from the universities, the two teacher educators from the Methodology Department, where the allocation of student teachers is mainly carried out, claimed that the student teachers are placed to the schools in accordance with their respective subjects that are taken as their majors at the university. According to the teacher educators, the relevance between the major subject and the subject responsible to teach at the school during the practicum is the first priority for the university teachers to think.

> *"These schools already have connection with this university since the university did the practicum teaching. We have already connection with these schools. Before I did assigning student teachers to schools, we phone to all the schools to ask how many secondary rooms (classroom) and students are there at schools, whether the students are arts major or science major (because we have art and science majored student teachers), how many classrooms are there at the school, etc. We phoned to every singles schools." (Teacher educator from methodology department)*

Feedback and evaluation

As soon as the student teachers are placed to the schools, the evaluation sheet is given by the university to the schools for the evaluation of student teachers' teaching during their practical teaching. The school teachers observe the student teachers' classroom teaching and evaluate according to the informed sheet. These results directly send to the university and the student teachers are not allowed to see them.

> *"Normally, the university doesn't support formal feedback for our practice teaching. But some teachers informally ask about the experiences of practice teaching during the lecture. The evaluation done by the school teachers is directly sent to the university. We are not allowed to see it. And we never know the results". (Student teacher 1)*

> *"We check the report from the school. Before student teachers go their practical teaching, we have already given the "evaluation form" to the school with them. Their mentor teacher will evaluate them through the form. And we check this report form. And also we check the "group report" by the group of student teachers also." (Teacher Educator from methodology department)*

Closeness between partners

When student teachers are doing their practical teaching at the schools, the university educators from all departments of the university go to schools to assess the student teachers' practical teaching. But according to the university educators, they usually go to the schools and talk with

the principals. Few university educators observe the student teachers and they rarely talk or discuss with school teachers for the training of student teachers.

> *"Once, I went to the student teachers' practical teaching school to observe their teaching and I talked to headmaster. I also asked student teachers whether they are OK in everything. But I never talk to school teachers." (Teacher Educator)*

> *"At school, we are given a separate/private room for all of us. As we were in another room, we couldn't see what the school teachers are talking, doing and planning for everything. So, I felt that we are separated from all school teachers." (Student Teacher 2)*

Conclusion

To conclude, based on the finding of the case study, it can be hypothesized that the collaboration between universities and schools are still in the early stages and it's early to evaluate its results. There is an imperative need to build trust and closeness between partners for an effective initial teacher training.

CASE 3: Professional Development in Spain: Centers for Continuous Professional Development (Summary)

According to Livingston (2016), the initial teacher training that takes place in universities is inadequate to address the complexity of the teaching/learning process in the classroom and the demands of a changing society. Today, the Spanish educational legislation provides incentives for the development of continuous training activities for teachers through the "Annual Plan for Teacher Training" which is organized by each regional government. The Organic Law 2/2006 of Education regulates the continuous training for teachers at national level and is mandatory for evaluation purposes. Teachers training is carried out in *Teacher Centers* and other institutions such as university departments, faculties, professional associations, unions, educational reform movements, and teacher training centers (Pusztai & Engler, 2015).

The case

In a globalized world in which new ways of learning are constantly evolving, teaching is drawn as an activity in continuous metamorphosis, which requires an extra effort by teachers in terms of their training and continuous professional development. This effort's is directed to keep teachers' pedagogical knowledge up to date, for this reason, the Spanish education system has a network of centers in which training courses are taught for teachers with a teaching contract within the public education system. These centers were created in 1984 after a long period of dictatorship (1939-1975). The Spanish education system is decentralized, that is, each autonomous community has the power to set its own decrees in the educational field, based on the one published by the state. In Almería, where the present study is carried out, we found three *teacher centers* located in strategic geographical points that give assistance to the entire province and were able to interview teacher trainers, teachers and center leaders.

The permanent *teacher training centers* have become indispensable in the theoretical and practical training of Spanish teachers. These centers in partnership with universities, government and other educational institutions offer courses based on the needs detected in the schools of the autonomous community. Currently, the main trainings are focused on the

development of key competencies and use of new technologies, although courses related to educational projects or neuro-education are also offered. Also, theoretical and practical courses of innovation in the world of education are offered. In addition, depending on the number of participants, the courses can be carried out in the training centers themselves or in the schools.

The current Spanish system rewards teachers with a salary increase every three years - what is known as a "triennium" - as long as the teachers have completed a number of hours of training making the attendance non-voluntary for career development. The courses are free and the transfer of the teacher to the training center is paid. As it becomes clear, the incentives to encourage teachers to keep their professional learning and development are many.

Methodology

This research was developed using a case study approach. Data was collected using semi-structured in depth-interviews (Kallio, Pietilä, Johnson & Kangasniemi, 2016; Longhurst, 2016) through digital tools due to the impossibility of scheduling a face-to-face meetings. Digital tools are opening a world of possibilities in the research field that previously could only be carried out offline (Ardèvol, Bertrán, Callén & Pérez, 2003), among which stand the convenience of the interviewee to answer questions in an atmosphere and moment suitable for them, while is true that we lost the analysis of the non-verbal communication.

As Cook (2008) defines it:

> In-depth interviews are interviews in which participants are encouraged and prompted to talk in depth about the topic under investigation without the researcher's use of predetermined, focused, short-answer questions (...) In-depth interviews are often referred to as semi-structured interviews because the researcher retains some control over the direction and content to be discussed, yet participants are free to elaborate or take the interview in new but related directions (p. 423)

The interviews were transcribed verbatim and analysed through a deductive way with pre-established topics identified in the literature review (Manzanares & Galván, 2009; Pacheco, 2008; Giner & Giner, 1998). Topics included: the necessity about doing this course, methodology, students and trainers enrolment, evaluation, utility of the training, intended goals and ways to improve the training system.

Sample

The sample in this research were three primary teachers with different professional backgrounds.

The interviewee no.1 is a teacher with 4 years of experience. She attended a course on key competencies and innovative methodologies oriented to the evaluation through competences with the objective of implementing this system in the entire centre. Her participation in this project corresponds to two main motivations: the first is to improve her academic portfolio, which will have a positive impact on her educational practice; and the second, is to learn about the new system for later implementation in her workplace, thus supporting the management team in further initiatives. She was assigned to a working group which focused on the first level of primary school (6-7 years old children).

The second correspondent is the headmaster of a primary school who has been collaborating with one of the teachers centres for several years. He has had the student role and teacher roles in this type of course. His career in the education field is about 30 years.

The third and last interviewee is a primary teacher who has participated in several courses as a student during her teaching career of 42 years. She has never taught any course or topic in this centre.

Results

The first interviewee was trained to implement a system of evaluation by competences in the following academic year. In general, the training has been associated with a positive result, since it has generated improvements at the individual level in each of the teachers, which implies an indirect benefit for the educational community. The interviewee affirms that the *course has been useful to improve my daily practice (Interview.01)*, although she acknowledges that just about half of the training content was transferable to the classroom.

The interviewee recognizes that, the teacher who has taught the course showed a deep knowledge of the subject although, some parts of the course lacked the practical part. Also, the interviewee highlights the lack of motivation of their peers, as some of them have been leaving the course either for lack of interest or other reasons. The interviewees also recognized that given their teaching subject, the course was not as useful as expected (Interview 01, 02. 03), since many of the contents have focused on teamwork and group cohesion and some teachers work with students who have difficulties in oral and written expression, having an individual and direct intervention with each student.

The three interviewees mentioned a series of possible improvements that could be taken into consideration for future editions, including the need for motivation and responsibility of teachers, "*there should be better control of the resources allocated to these types of centers, people that leave early should have to take the course again*" (Interviewees 01, 02, 03). It's unclear if the objective of the project was achieved, since the lack of participation teachers led to the failure of the initial attendance goals however, the system for assessing students by competencies at the school level is still ongoing.

CASE 4: Opening up education – a research-based development in vocational education (Summary)

This case study focuses on the open content development (OCD) project initiated by the Teacher Training Centre of the Budapest University of Technology and Economics. The project is one of the successful applications of the call of the Hungarian Academy of Sciences. The call aimed to encourage research on methods supporting complex teaching approaches and implement interdisciplinary research with the objective to renew pedagogical approaches and methods of knowledge transfer. The prerequisite for applying for the funding was the establishment of a research working group and the involvement of practitioners from institutions of public education.

The identified challenges of the current vocational education system in Hungary that the project wished to tackle are:
- the insufficient quality and volume of vocational curriculum content (almost 30% shortage),
- the rigid subject structures versus the dynamically changing professional content,
- and the falling student numbers and motivation (Benedek 2016).

In addition, one of the main assumptions of the project was that young people's content consumption habits have changed compared to previous generations, due to the active, everyday use of content sharing sites. This gave the idea that the methods that lead to better learning outcomes often include young people producing their own content.

Finally, it is important to note here that the research group has been extensively researching the modern opportunities of visual communication already prior to the project. All this led to the creation of micro-contents with the active involvement of students which is at the core of the OCD project. Micro-contents are small learning units that compress and structure information using concise text and rich visualisation and can effectively support the teaching of comprehensive subjects. They facilitate the easy and fast generation and acquisition of content. The creation of micro-contents is also one of the main focuses of the OCD project.

Methodology

The case study belongs to the one case, multiple analysis units' type, so that it explores only one case with pre-defined units of analysis. The case has been processed using the analytic approach that does not identify major problems or provide recommendations on how to fix the problems but is used to examine a case and to determine what has happened and why this has happened.

When planning the case study, the theoretical method of using minimal theoretical assumptions, the articulation of open ended questions based on the method of induction has been applied (Hammersley & Atkinson, in: Szokolszky, 2004). The research was carried out in a loose theoretical frame with open questions, without concrete hypotheses; the hypotheses were formed during the course of research, at the early stage with progressive focusing. The formulation of the research problem was a process; it followed a progressive work on clarifying the internal structure became and sharpening the focus. The research topic itself was formed in the course of preparing the case study, in accordance with academic literature

The limits of the research are strongly tied to the relatively short timeframe which made the repetitive phases of data collection and data processing impossible. This was compensated for with the use of varied data source. Both elicited (interviews) and extant (project documents and published literature) data have been used (Birks and Mills, 2015).

Documents, such as scientific publications and dissemination materials, that were prepared during the project have been analysed, alongside conducting interviews with the leader of the research, the head of the vocational teacher training centre, the project manager, two school principals and three teachers taking part in the project. The interviewees were selected based on the interview with the leader of the research. Altogether audio files of 420 minute-length were prepared.

Description of the case

The project started with the elaboration of the research concept and laying of theoretical foundations. Meanwhile the research team made up from faculty members and school coordinators have been formed. There were methodological trainings organised by the university to the participating schools, aiming to motivate teacher development, familiarise teachers with innovative techniques, and introduce them the practical opportunities of online collaborative methods between teachers and students.

The main activities were the development and sharing micro-contents in cooperation of faculty and practitioners with the active involvement of students in a network of volunteering schools.

Additional activities involved the preparation of ICT-supported learning framework systems where the contents created could be uploaded, developing the concept of professional development, and piloting newly developed and further developed subject methodology programs through micro-contents to test its effectiveness and efficiency.

The project is small scale, involving an innovative methodological network of 10-12 schools which opened an opportunity for analyzing the practices and impacts of teacher-student interactive open content development. On the basis of the experiences gained from this process, the project will generate recommendations and provisions that can be tested on a wider circle of vocational grammar schools and vocational schools.

Throughout the project there is extensive external communication, in forms of conferences, publications and workshops. School participants are also involved in the dissemination of research results as well as in some cases the students who took part in the open curriculum development.

Main findings

The project involved a design-based planning approach. At the beginning it was made possible for many people to come up with a variety of ideas as regards, for instance, the aims, functions and display of the learning system frameworks, that later on begin to converge towards the end of the project and culminate in one achievement from the work of many people.

The learner as client-approach is also fundamental characteristic of the OCD project. The main research questions ask if it is possible to compile a considerable amount of curricula written according to traditional principles into micro-content units. This led to the question whether it is possible to collaborate with the pupils/students in this process and how can micro-contents be used effectively in courses for students belonging to different age groups (X, Y, Z generations) (Horváth, 2016). The emphasis is therefore on increasing students' activity by upgrading the quantity and quality of visual elements and exploiting the potential of new technology through developing a complex teaching and learning system.

School coordinators play a key role in the project. They are researchers, facilitators, mediators, team workers and teachers at the same time. They share the results of the research group and the generated knowledge with their colleagues at the school level, produce micro-contents and engage the pupils in producing them too. Ultimately, most of them seek to win over more teachers to join the project work.

The OCD project is also a teacher training project. Professional development is based on participants' willingness to learn, therefore, motivation and development goals come from the teachers themselves. Researchers also play a major role in this. They often need appropriate teaching and learning competences and need to be motivated to share them with the teachers. This affects the communication, social and knowledge competences of the researchers. The researcher becomes a professional who listens to teachers and serves as a resource.

Schools that show serious commitment often point out remarkable outcomes as it is captured through these quotations by the respondents.

"I learnt from the children how to do it, how to upload it … I learnt a lot from them"

"I am really impressed that it has started, I haven't heard of anything like that 5-6 years ago – and now you can see and hear a lot of new things, I wasn't even expecting it".

"The Hungarian teachers began to do things – we started to share ideas, curricula (…) there's a great potential in the teachers' mind (…) each of these initiatives are good to look out from our own world"

"This is absolutely fantastic that we can break away from the teacher – student hierarchy".

"A common content sharing site was created… this has been a recent development, the result of the las few month…this is very good now"

"They (the students) like the micro-contents very much. According to the survey, approximately 75% of them learnt only from them.".

"It reinforces the view that even under restrictive rules, without being properly paid, with all extra classes to do, teachers still have methodological freedom".

The interviews have also shown that there is a "hidden resistance" from some teachers and schools, rooted partly in the aforementioned excessive workload and partly in the negative attitude towards change.

The biggest challenge for open content development is additional workload that it creates for the participants. next to the challenge of convincing the teachers of the benefits. Empirical research confirms that in order to strengthen teachers' commitment, the teachers must feel the project as their own (Postholm, 2008).

Also, knowledge sharing is often not self-evident for schools. This creates a challenge in changing the attitude of school leadership and school staff. While there are often few enthusiastic teachers who are actively involved with their students in micro-content development and upload the content to the internally for the school network there are many that are not willing to engage.

The participating schools expressed their desire to receive external help from the university to facilitate knowledge sharing among schools. This to happen also depends on the activity of the schools themselves, since only when the uploaded content reaches the critical amount, allows sharing and developing collaborations.

Conclusion

The OCD project is a bottom up, micro-level project that is a showcase of innovation in many aspects. It entails school-based curriculum development, employing the opportunities lying in the modern info-communication technology. The use of cloud technology has made it possible to use micro-contents in open access thus creating the potential of horizontal knowledge sharing and network learning. With wide ranging applications the technology allows the uploading and sharing of an ever-increasing complexity of the representation of knowledge. It is implemented with the active involvement of students, both in curriculum development and in dissemination activities.

Finally, from the point of view of the current research, it is based on school-university partnership, through which it provides opportunity of practice-based learning, of the creation of a shared knowledge background and directly supports the schools' work.

5. Findings

The first round of analysis revealed the presence of the literature-based themes within the cases.

Round of analysis 1. Identification of findings that support the pre-existing themes.

Through deductive analysis of the concepts of the four main themes: (a) Stakeholders engagement, (b) Teacher learning outcomes, (c) Enabling networks and partnerships, and (d) Program sustainability; sub elements were identified through the analysis of each case study. See Table. 3.

Table 3. Selective case data regarding the pre-existing themes (document analysis and interviews)

Case number	Theme	Theme deployed through	Illustrative participants statements/evidence from the case
Myanmar (1)	Stakeholders engagement	Reachable partners Open and continuous Communication	One interviewee, teacher trainer, mentioned that during this training, she got good support from the central trainers and found that the Japanese experts observed the central training session and gave constructive feedbacks, comments and suggestions while/after the central trainers conducted the training. A school teacher reported that during the training, the partnership support from the township education officers and headmasters/headmistress could be received.
	Teacher learning outcomes	Satisfaction Knowledge used beyond the project	*"the collaborative partnership emphasizes the monotony more than creativity in teachers… the central level training is not much satisfactory for learning for a state/division level trainee"* One of the interviewees informed that in implementing the new curriculum in real classroom, the most significant change occurred in teaching/learning methods. Previously, she used the lecture method most of the time. After training, she could use the innovative teaching methods that encourage students' active participation and critical thinking. More specifically speaking, the traditional classroom setting which does not encourage the discussion between and among teacher and students was transformed into the double U classroom setting which encourages the discussion in the classroom. Although the teaching aids were supported adequately during the training period, there were limited teaching aids in implementing in the classroom. This could make improvement in teachers' creativity because she needed to

99

			develop the teaching aids by using the available materials.
	Enabling networks	Openness to outer networks	*The project is nationwide. The network is wide and involves several schools.*
	Program sustainability	Voluntary participation	The project period is from 2014 to 2021. The outcomes can be sustained because it is reform. The practitioners cannot go on without practicing these project results. It is imperative to implement the new curriculum. However, during the implementation, mainly teachers and not teacher aids (student teachers) were involved
Myanmar (2)	Stakeholders engagement	Open and continuous Communication	University teachers and student teachers have some extent of engagement between them. But it is not equally beneficial. *"Normally, the university doesn't support formal feedback for our teaching practice. But some teachers informally ask about the experiences of our teaching practice during the lectures. The evaluation done by the school teachers is directly sent to the university. We are not allowed to see it. And we never know what the results are".*
	Teacher learning outcomes	Feedback	The report of the student teachers showed that the practicum did give valuable experiences for all of them. They can learn how to handle the authentic situation in a classroom during the practicum. But lack of feedback from the university and school teachers to the students is evident
	Enabling networks	Project member awareness	*"there is a collaboration between university and the schools. However, the university has been the one establishing the networks with all the schools. But the university is the main source which has all the connection with the schools. There is no connection between the*

			schools. The connection is only between the university and the schools"
	Program sustainability	Ongoing needs/benefits	There is a formal partnership between university and schools. This kind of collaboration happens every year for student teachers.
Spain	Stakeholders engagement	Open and continuous Communication	"the time spent in the program, allowed us to develop better ways of communication and that improved the school climate"
	Teacher learning outcomes	Knowledge used beyond the project	"I was able to learn a lot"
	Enabling networks	Using previous connections	"the fact that we had the opportunity to share our experiences, and spend this quiet time together was beneficial for all of us. We were able to improve the relationship between colleagues of the same school".
	Program sustainability	Voluntary participation	"sometimes people come just to fulfill criteria. It's a pity that teachers do not take the course seriously enough considering all the benefits for the school, students and also the support offered by the government (free course and the possibility to attend in a different location. .
Hungary	Stakeholders engagement	Open and continuous Communication Observable results	There is well a developed information exchange process involving multiple stakeholders: the bi-monthly research group meetings involve university experts, teachers, teacher trainers and sometimes audiences, for researchers, teachers and teacher trainers. Two interviewees reported about better student achievements as a consequence of their direct involvement in the micro-content

101

			creation 3. Elements of effective engagement in the project
	Teacher learning outcomes	Knowledge used beyond the project	Two teachers reported about doing her master thesis/PhD thesis connected to the project. One on the introduction of a new learning method, the micro-content, and the other on economic impact of digital-based education, respectively. In addition, one teacher interviewee remarked: *"I learnt from the children how to do it, how to upload it … I learnt a lot from them".*
	Enabling networks	Using previous connections Openness for outer networks	Small, informal networks have been formed based on the project at some of the schools: those teachers who liked to work together prior to the project, began to cooperate on this project as well, by discussing and sharing micro-contents. A network of 4-5 schools are involved, with the university providing resources and expertise.
	Program sustainability	Participants time management	All teacher interviewees reported lack of time as a challenge. One interviewee mentioned the large turnover rate among teachers as another challenge (inconsistency of members participation). In an interview with a school principal the lack of a broader perspective of the partnership has been observed. On the opportunities side, the infrastructure and cloud services provided by the university and the backbone service of the Hungarian Academy of Science that is offered free to participating schools can be noted.

After the identification of sub-themes in each case study. Those were inventoried and their presence was tested in each case study. See table 4.

Table 4. Cross-case analysis results

Theme	Theme deployed through	Case study 1	Case study 2	Case study 3	Case study 4
Stakeholders engagement	Reachable partners	Partners were reachable through official and unofficial means	....	....	....
	Open and continuous communication	Formal ways of communication were inhibited creating informal ones	Formal ways of communication were inhibited creating informal ones	The program improved internal communication and vice versa.	Continuous bi-monthly meetings
	Observable results	....	....	....	Students improved their learning results
Teacher learning outcomes	Satisfaction	Low satisfaction	....	....	....
	Knowledge used beyond the project	Knowledge used in the classroom	....	Teachers acquired useful knowledge and develop skills	Two teachers developed their thesis with basis on the partnership.
	Feedback	Feedback was provided by the partners and was highly appreciated	There was no manner to measure the outcomes without a proper feedback system.	....	....
Enabling networks	**Using previous connections**	....	....	Small groups of previous accountancies within the school were formed	Small groups of previous accountancies within the school were formed
	Openness for outer networks	Nationwide collaboration	....	....	4-5 schools develop a collaboration network

103

	Stakeholders' awareness	::::::::::::	Stakeholders didn't know each other	::::::::::::	Teachers were not aware of students' knowledge but were (+) surprised by it
Program sustainability	**Voluntary participation**	No voluntary but necessary in the context	::::::::::::	Participants fulfill minimum criteria (no voluntary)	::::::::::::
	Ongoing needs/ benefits	::::::::::::	There is a ongoing partnership to train teachers	::::::::::::	
	Participants time management	::::::::::::	::::::::::::	::::::::::::	Teachers that participated in the project reported lack of time for the project

Finally, important lower-level codes (sub-themes) were identified: Open and continuous communication, knowledge used beyond the project, using previous connections, stakeholders' awareness and voluntary participation.

Table 5. Higher level codes and their focus for identification

Higher-order codes (themes)	Important lower-order codes	Focus of statements to identify lower order codes
Stakeholders engagement	**Open and continuous communication**	Open channels for communication. Schedules for on-line and in-situ meetings.
Teacher learning outcomes	**Knowledge used beyond the project**	Implementation of new knowledge either in teaching practice or research.
Enabling networks	**Using previous connections**	Creation of teams within the partnership with people that successfully work together in the past
	Stakeholders' awareness	Written document, map or graphic defining knowledge, skills, tools that the stakeholders are willing to provide during the partnership
Program sustainability	**Voluntary participation**	Participation of all stakeholders on voluntary basis.

Round of analysis 2. Identification of new themes

The second round of analysis used an inductive approach in which each case data was analyzed. Illustrative participants statements were identified and from them lower-level codes (sub-themes) were created, see Table 6.

Table 6. Evidence of new lower level codes

Case	Lower-level code	Illustrative participants statements
Myanmar (1)	Flexibility	*She thought that the weak point of the training was the fixed plan that was difficult to change.*
	Trust and relationship development	*During this training, I got good support from the central trainers and found that the Japanese experts observed the central training session and gave constructive feedback*
Myanmar (2)	Trust and relationship development	There is an urgent need to build trust and closeness between partners if a successful and effective project is to be implemented *"...We phoned to every single school (to make sure they can host students)."* *"Once, I went to the student teachers' practical teaching school to observe their teaching and I talked to headmaster. I also asked student teachers whether they are OK in everything. But I never talk to school teachers."*
Spain	Innovation	Changes produce challenges, a key informant noted that the project has not been as innovative as necessary
Hungary	Change	*"I am really impressed that it has started, I haven't heard of anything like that 5-6 years ago – and now you can see and hear a lot of new things, I wasn't even expecting it".*
	Flexibility	*"This is absolutely fantastic that we can break away from the teacher – student hierarchy".*

The lower level-codes (subthemes) were tested in all cases to see if they were present and how. See Table. 7

Table 7. Cross-case analysis results

Lower-level code	Case study 1	Case study 2	Case study 3	Case study 4
Flexibility	Lack of flexibility in certain processes of the project	Lack of flexibility in certain processes of the project	There is partial flexibility in the project, but it's disregarded	Project became flexible over time
Trust and relationship development	There was trust on the criteria of the counterparts	Lack of trust for some stakeholders	There is an overall trust in the system and project in general	The trust among partners is very high and makes the project work
Innovation	The project goals were focused on the basis of innovation	The project goals were focused on the basis of innovation	The project strategy and materials were outdated, innovation was consider necessary	Project was developed on the basis of innovation
Change	There was trust produced change	The project was design on the basis of change and improve outcomes	The lack of change in the system makes the outcomes random	Project changed the social structure

In the last step consisted in the aggrupation of lower-lever codes (subthemes) into higher level codes (themes). This was done following a conceptual likeness and apparent relation between the lower level codes. See table 8.

Table. 8 New codes

Higher-order codes (themes)	Lower-order codes	Focus of statements to identify lower order codes
Trust	Relationship development	Development of trust among each other, being sure that their position in the project is equal to their counterparts and that will always keep their interest in mind
Openness to change	Change	Open to modify pre-conceived notions of hierarchy, structure, methods, etc.
	Innovation	Open to implement new alternatives, solutions, etc
	Flexibility	Open to modify, improve or stop any circumstance that slows down the implementation or development of the project

Finally, the analysis of the data found two new themes **e) Trust**, which refers to the importance of reliance between partners, a position of equality between counterparts and the conviction that all stakeholders will always have the interests of each other in mind. **f) Openness to change** which refers that the stakeholder will modify pre-conceived notions of hierarchy, structure and methods used in the partnership. Also, the stakeholders should be flexible to innovation and new ideas to generate solutions in order to correct or to improve the project at any given time.

6. Conclusion and discussion

This article addressed the elements that influence the success of school university partnerships. Each element (theme) was examined in order to revise their presence in the case studies and the interrelationships between them.

School-university partnerships have been and still continue to be one of the most effective strategies for collaboration between these educational institutions. This study intended to give an insight into these partnerships. Drawing in the results of the first round of data analyzed it's reasonable to conclude that the four elements initially identified in the literature: (a) Stakeholders engagement, (b) Teacher learning outcomes, (c) Enabling networks and partnerships (d) Program sustainability, are indeed important for the successful development and implementation of a school-university partnership. These elements emerged through the examination of related literature in school-university partnerships and were the most commonly found as decisive in the success of the partnership.

Also, the paper has outlined some new elements that were identified in the case studies as important: e) Trust, f) Openness to change. These two elements are present in previous studies in school-university partnership, however the researchers would like to open the discussion about considering "Trust" not just as a value that revolves around a shared

commitment to the common goal guided by a positive relationship that ensures any challenge along the way is resolved effectively, but also as a *strategy* that can be planned and executed through actions. Also, "openness to change" and its partial components: change, innovation and flexibility should be considered similarly.

As a qualitative study based on several case studies, it was not designed to offer any type of generalizability. However, the authors consider that this research paper provides a good insight in the elements that affect school-university partnerships. Further research is necessary to verify the elements (themes) identified in this paper.

Finally, this paper recognizes that there are upcoming challenges affecting the effectiveness and efficiency of school-university relationships and hence recommends future research to focus on their mitigation strategies.

7. Limitations and recommendations

A word of caution must be given since the present study was done with a limited sample so its results cannot be generalized. The identification of success factors of school university partnerships was done using only sixteen studies due to time constrains, for instance, the authors recommend broadening this number in future investigations since it cannot be discarded the possibility of finding more themes in the literature review round. A bigger sample of interviewees in each case study is also suggested.

References

Bal, M., Bryde, D., Fearon, D., & Ochieng, E. (2013). Stakeholder engagement: Achieving sustainability in the construction sector. *Sustainability*, *5*(2), 695-710.

Baker, P. J. (2011). Three configurations of school-university partnerships: An exploratory study. *Planning and Changing*, *42*, 41-62.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, *13*(4), 544-559.

Barnes, J. V., Altimare, E. L., Farrell, P. A., Brown, R. E., Burnett III, C. R., Gamble, L., & Davis, J. (2009). Creating and sustaining authentic partnerships with community in a systemic model. *Journal of Higher Education Outreach and Engagement*, *13*(4), 15-29.

Bebas, C. (2016). School-University Partnerships: The Professional Development Schools Model, Self-Efficacy, Teacher Efficacy, and Its Impact on Beginning Teachers. *School-University Partnerships*, *9*(2), 18-27.

Benedek, A. (2016). Új tartalomfejlesztési paradigma a szakmai tanárképzésben. In: Tóth Péter-Hollik Ildikó (szerk): Új kutatások a neveléstudományokban 2015. Pedagógusok, tanulók, iskolák – az értékformálás, az értékközvetítés és az értékteremtés világa. Budapest, ELTE, Eötvös Kiadó, 87-94 p.

Berg-Weger, M., Herbers, S., McGillick, J., Rodriguez, C., & Svoboda, J. (2007). Not Prepared to Care" and "Raising the Bar: Case Examples of Building University-Community Partnerships in Gerontological Social Work Research. *Journal of gerontological social work*, *50*(1-2), 21-38.

Birks, M., & Mills, J. (2015). *Grounded theory: A practical guide*. Sage.

Biggs, J. B. (2011). *Teaching for quality learning at university: What the student does*. McGraw-Hill education (UK).

Boud, D., & Falchikov, N. (2006). Aligning assessment with long-term learning. *Assessment & Evaluation in Higher Education*, *31*(4), 399-413.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Borg, S., Clifford, I., & Htut, K. P. (2018). Having an Effect: Professional development for teacher educators in Myanmar. *Teaching and Teacher Education*, *72*, 75-86.

Bullough Jr, R. V., & Baugh, S. C. (2008). Building professional learning communities within a university—public school partnership. *Theory into Practice*, *47*(4), 286-293.

Burton, S. L., & Greher, G. R. (2007). School—University Partnerships: What Do We Know and Why Do They Matter?. *Arts Education Policy Review*, *109*(1), 13-24.

Carpenter, B. D., & Sherretz, C. E. (2012). Professional development school partnerships: An instrument for teacher leadership. *School-University Partnerships*, *5*(1), 89-101.

CEDEFOP, 2011. Vocational Education and Training in Hungary. Luxembourg: Publication Office of the European Union.

https://www.cedefop.europa.eu/files/4103_EN.pdf (Downloaded: 19.08.2019)

Coburn, C. E., Russell, J. L., Kaufman, J. H., & Stein, M. K. (2012). Supporting sustainability: Teachers' advice networks and ambitious instructional reform. *American Journal of Education*, *119*(1), 137-182.

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of teacher education*, *61*(1-2), 35-47.

DiBari, J. A. (2016). Studying school improvement teams to analyze multiple stakeholder engagement in decision-making in public education.

Dresner, M., & Worley, E. (2006). Teacher research experiences, partnerships with scientists, and teacher networks sustaining factors from professional development. *Journal of Science Teacher Education*, *17*(1), 1-14.

Furco, A., & Billig, S. H. (Eds.). (2002). *Service learning: The essence of the pedagogy*. IAP.

George, A. L. (2019). Case studies and theory development: The method of structured, focused comparison. In *Alexander L. George: A Pioneer in Political and Social Sciences* (pp. 191-214). Springer, Cham.

Gerring, J. (2004). What is a case study and what is it good for? *American political science review*, *98*(2), 341-354.

Getha-Taylor, H. (2012). Cross-sector understanding and trust. *Public Performance & Management Review*, *36*(2), 216-229.

Gilles, C., Wilson, J., & Elias, M. (2009). School-University Partnership: Perceptions of the Teachers. School-University Partnerships, 3(1), 100-112.

Gimenez, C., Sierra, V., & Rodon, J. (2012). Sustainable operations: Their impact on the triple bottom line. *International Journal of Production Economics*, *140*(1), 149-159.

Gosling, D., & Moon, J. (2001). How to use learning outcomes and assessment criteria (London, Southern England Consortium for Credit Accumulation and Transfer).

Gustafsson, J. (2017). Single case studies vs. multiple case studies: A comparative study.

Halasz, G. (2016). School-university partnership for effective teacher learning. *KIP Regional Methodological Centre*.

Hemmati, M. (2002). *Multi-stakeholder processes for governance and sustainability: beyond deadlock and conflict*. Routledge

Holton, V. L., Jettner, J. F., & Shaw, K. K. (2015). Measuring community-university partnerships across a complex research university: Lessons and findings from a pilot enterprise data collection mechanism. *Metropolitan Universities*, *26*(2), 99-124.

Horváth Cz., J. (2016). Micro-content Generation Framework as a Learning Innovation. In: Benedek, A., Veszelszky Á (eds). In the Beginning was the Image. The Omnipresence of Pictures. Peter Lang edition, 171:19

Israel, B. A., Krieger, J., Vlahov, D., Ciske, S., Foley, M., Fortin, P. ... & Tang, G. (2006). Challenges and facilitating factors in sustaining community-based participatory research partnerships: lessons learned from the Detroit, New York City and Seattle Urban Research Centers. *Journal of Urban Health*, *83*(6), 1022-1040.

Kennedy, D. (2006). *Writing and using learning outcomes: a practical guide*. University College Cork.

Khan, S., & VanWynsberghe, R. (2008). Cultivating the under-mined: Cross-case analysis as knowledge mobilization. In *Forum qualitative Sozialforschung/forum: Qualitative social research* (Vol. 9, No. 1).

Krathwohl, D. R., & Anderson, L. W. (2009). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman.

Leal Filho, W., & Brandli, L. (2016). Engaging stakeholders for sustainable development. In *Engaging Stakeholders in Education for Sustainable Development at University Level* (pp. 335-342). Springer, Cham.

Lieberman, A. (2000). Networks as learning communities: Shaping the future of teacher development. *Journal of teacher education*, *51*(3), 221-227.

Lieberman, A., & Miller, L. (Eds.). (2001). *Teachers caught in the action: Professional development that matters* (Vol. 31). Teachers College Press

Livingston, K. (2016). Teacher education's role in educational change.

Lunenburg, F. C. (2011, December). The Comer School Development Program: Improving Education for Low-Income Students. In *National Forum of Multicultural Issues Journal* (Vol. 9, No. 1).

Maheady, L., Magiera, K., & Simmons, R. (2016). Building and sustaining school-university partnerships in rural settings: One approach for improving special education service delivery. *Rural Special Education Quarterly*, *35*(2), 33-40.

Matheus, T., Saunders, M. N., & Chakraborty, S. (2017). Multiple dimensions of power influencing knowledge integration in supply chains. *R&D Management*, *47*(5), 673-688.

McLaughlin, C., & Black-Hawkins, K. (2007). School–university partnerships for educational research—distinctions, dilemmas and challenges. *The Curriculum Journal*, *18*(3), 327-341.

Mills, A. J., Durepos, G., & Wiebe, E. (Eds.). (2009). *Encyclopedia of case study research*. Sage Publications.

Ministry of Education (2015). Update on drafting the national education strategic plan (NESP) 2016-2021. Yangon, Myanmar

Ministry of Education (2016). *National Education Strategic Plan*. Myanmar.

National Research Council. (2015). *Guide to implementing the next generation science standards*. National Academies Press.

Northmore, S., & Hart, A. (2011). Sustaining community-university partnerships. *Gateways: International Journal of Community Research and Engagement*, *4*, 1.

Ng, S. S., & Chan, E. Y. (2012). School—University Partnership: Challenges and Visions in the New Decade. *Global Studies of Childhood*, *2*(1), 38-56.

Penuel, W. R., & Riel, M. (2007). The 'new' science of networks and the challenge of school change. *Phi Delta Kappan*, *88*(8), 611-615.

Postholm, M.B. (2008). The start-up phase in a research and development work project: A foundation for development. Teaching and Teacher Education 24, 575–584

Pritchard, A. (2017). *Ways of learning: Learning theories for the classroom*. Routledge.

Pusztai, G., & Engler, Á. (2015). Teacher Education Case Studies in Comparative Perspective.

Rowley, J. (2002). Using case studies in research. *Management research news*, *25*(1), 16-27.

Sanzo, K. L., & Wilson III, J. M. (2016). Stakeholder Experiences in District-University Administrator Preparation Partnerships. *International Journal of Educational Leadership Preparation*, *11*(2), 1-20.

Slavin, R. E. (2008). Comprehensive school reform. *21st century education: A reference handbook. Thousand Oaks, CA: Sage*.

Stephens, D., & Boldt, G. (2004). School/university partnerships: Rhetoric, reality, and intimacy. *Phi Delta Kappan*, *85*(9), 703-707.

Szokolszky, Á. (2004). Kutatómunka a pszichológiában [Research in psychology]. *Budapest: Osiris Kiadó*.

Suarez-Balcazar, Y., Harper, G. W., & Lewis, R. (2005). An interactive and contextual model of community-university collaborations for research and action. *Health Education & Behavior*, *32*(1), 84-101.

Unerman, J., & O'Dwyer, B. (2006). Theorising accountability for NGO advocacy. *Accounting, Auditing & Accountability Journal*, *19*(3), 349-376.

Wagner Mainardes, E., Alves, H., & Raposo, M. (2012). A model for stakeholder classification and stakeholder relationships. *Management decision*, *50*(10), 1861-1879.

Weiss, I. R., & Pasley, J. D. (2006). Scaling Up Instructional Improvement through Teacher Professional Development: Insights from the Local Systemic Change Initiative. CPRE Policy Briefs. RB-44. *Consortium for Policy Research in Education*.

Williamson, H. J., Young, B. R., Murray, N., Burton, D. L., Levin, B. L., Massey, O. T., & Baldwin, J. A. (2016). Community–university partnerships for research and practice: Application of an interactive and contextual model of collaboration. *Journal of higher education outreach and engagement*, *20*(2), 55.

Withycombe Keeler, L., Beaudoin, F., Lerner, A., John, B., Beecroft, R., Tamm, K. ... & Lang, D. (2018). Transferring sustainability solutions across contexts through city–university partnerships. *Sustainability*, *10*(9), 2966

Yin, R. K. (2014). *Case study research: Design and methods (applied social research methods)*. Thousand Oaks, CA: Sage publications.

Zenkov, K., Shiveley, J., & Clark, E. (2016). Why we must answer the question "What is a Professional Development School?" *School-University Partnerships, (9)*, *3*, 1-10.

APPENDICES

APPENDICES TO THE STUDY "Innovation of the EDiTE professional doctorate program"

Annex1: Brainwriting

The version of the brainwriting we plan to use is based on the [6-3-5 Brainwriting](). "In brief, it consists of 6 participants supervised by a moderator who are required to write down 3 ideas on a specific worksheet within 5 minutes, this is also the etymology of the methodology's name. The outcome after 6 rounds, during which participants swap their worksheets passing them on to the team member sitting at their right, is 108 ideas generated in 30 minutes."

The adapted version let open the number of team members between 4 to 6, keep the 3 idea in one run, and apply 4 runs, use 5' for one run.

The adapted version of brainwriting
1. Preparation of the co-creation
   a. Ice breaking with a short individual task, which helps understand the role of bad ideas.
   b. Participants form groups of 4-6 people.
   c. Every group has a challenge (written form and announced), a concrete topic and they gather their idea in 4 runs.
2. Process of co-creation; part1
   a. Every participant gets an A/4 sheet with 3 post-it on it. S/he writes down 3 idea, thought, suggestion on the 3 post-it works in silent. (One on one, they have 5 minutes)
   b. They can pass their sheet on the other (using clockwise). They read what they get, and they can continue the idea building on that they read; or suggest a new idea inspired by those they read; or simple write down something new.
   c. They repeat the process another 3 times.
   d. Finally, they have (supposing that there are 4 members in a team) 4x4x3=48 ideas.
3. Process of co-creation, part2
   a. Every group has a flipchart and the members put and cluster their post-it on it. By this time every team member read all ideas, thus it can be a fast, discussion-based process and decisions.
   b. Every team select up to 3 ideas to share with the other teams.
   c. Quick reflections on the gathered idea on whole group level

Value Proposition Canvas – School-University Partnership Focusing on Teacher Learning
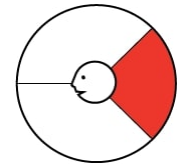
Customer jobs (goals, needs, dreams on behalf of university departments and schools and their staff)

Customers: university department(s) and their staff responsible for the preparation of the student teachers and the LLL of teachers; schools and their staff involved into the realisation of teacher learning.

Jobs describe the things the customers are trying to get done in their work or in their life. A customer job could be the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy.

The following questions support you to think about customer jobs and identify the most important elements of that. Define the 5 most important elements of the customer jobs regarding teacher learning in the frame of the school-university partnership.

- What are the characteristics of the environment which ELTE works together with school in preparing future teachers and provides continuous professional development possibilities for teachers in? (Formal and informal relation, goals and needs, attitudes, legal and financial issues, etc.)
- What are the characteristics of the teacher learning in those training programs, RDI projects realized by the ELTE and partner schools?
- What are the different contexts that schools, school staff and university staff might be in? How do their activities and goals change depend on these different contexts? (requirements on behalf of the different school maintainers, SES of schools, etc.)
- What tasks are customers trying to perform in their work or personal life? What functional problems are customers trying to solve? (E.g. understanding the digital world, support to change school culture and apply new pedagogical technology, etc.)
- What goals do you consider most important to increase the quality of teacher learning in the framework of school-university partnership?
- Are there problems that you think customers have that they may not even be aware of?
- What emotional needs are your customers trying to satisfy? What jobs, if completed, would give the user a sense of self-satisfaction? (Job satisfaction, security based on professionalism etc.)
- What is the one thing that your customer couldn't live without accomplishing while they focus on teacher learning? What are the steppingstones that could help your customer achieve this key job?

Value Proposition Canvas – School-University Partnership Focusing on Teacher Learning

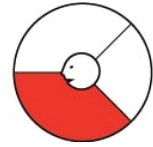**Customer pains (risks, bad feeling or outcome, too much effort, etc.)**

Customers: university department(s) and their staff responsible for the preparation of the student teachers and the LLL of teachers; schools and their staff involved into the realization of teacher learning.

Pains describe anything that annoys your customers before, during, and after trying to get a job done or simply prevents them from getting a job done. Pains also describe risks, that is, potential bad outcomes of the teacher learning during training and CPD, related to getting a job done badly or not at all. Focus on those factors you can influence.

The following questions support you to think about customer pains and identify the most important elements of that. Define the 5 most important elements of the customer pains regarding teacher learning in the frame of the school-university partnership.

- How do your customers define too „costly"? Takes a lot of time, costs too much money, or requires substantial efforts? (Think on the learning outcomes of your training and other services for schools, research results might be useful for school and teachers in their daily work, relations might support you to research those topics are essential for your customers, etc.)
- What are the main difficulties and challenges your customers encounter? (Organization of the training, facing bad attitudes, lack of support from the maintainers, outdated methods applied, etc.)
- How are current value propositions (training for future teachers, CDP for active teachers, cooperation in educational researches with schools, etc.) under performing for your customers? Which features are they missing? Are there performance issues that annoy them or malfunctions they cite? (lack of information, badly organized processes, slow decision making, etc.)
- What barriers are influencing your customer in supporting and realizing high level teacher learning? (E.g.: lack of prior knowledge and motivation, irrelevant expectation comparing the daily needs of the job, etc.)
- What negative social consequences do your customers encounter or fear? Are they afraid of a loss of face, power, trust, or status?

Value Proposition Canvas – School-University Partnership Focusing on Teacher Learning

Customer gains, results

Customers: university department(s) and their staff responsible for the preparation of the student teachers and the LLL of teachers; schools and their staff involved into the realization of teacher learning.

Gains describe the outcomes and benefits your customers want (what activities, programs, trainings, researches can serve the high-level teacher learning in cooperation of schools and the ELTE departments). Some gains are required, expected, or desired by customers, and some would surprise them. Gains include functional utility, social gains, positive emotions, and cost savings.

The following questions support you to think about customer gains and identify the most important elements of that. Define the 5 most important elements of the customer gains regarding teacher learning in the frame of the school-university partnership.

- What would make your customers' jobs or lives easier? Take into consideration both the requirements defined of the schools and the university staff. (How student teachers can be best prepared for their job? How do researches can support the teacher learning? How does the partnership support the development of the training program for teachers?
- Do you know what are the greatest professional challenges for schools, teachers and university staff members regarding teacher learning? If yes, how it can be used for increasing your product and services?
- What do customers dream about? What do they aspire to achieve, or what would be a big relief to them? How does ELTE can support schools and their teachers to perform better? How do schools help ELTE to keep up-to-date the teacher education and CPD programs based on school-university cooperation?
- What quality levels do your customers expect, and what would they wish for more or less of (regarding the support of teacher learning)?
    - What kind of long-term goals are served by the training and other services you provide for schools?
    - How do your products and services support your customers in their daily work (increase its quality)?

Value Proposition Canvas – School-University Partnership Focusing on Teacher Learning
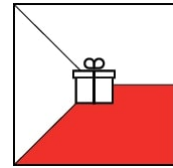
Pain relievers

Customers: university department(s) and their staff responsible for the preparation of the student teachers and the LLL of teachers; schools and their staff involved into the realization of teacher learning.

Pain relievers describe how exactly your products and services (training program for student teachers, CPD for active teachers and leaders, RDI programs in cooperation with schools, etc.) alleviate specific customer pains. They explicitly outline how you intend to eliminate or reduce some of the things that annoy your customers before, during, or after they are trying to complete a job or that prevent them from doing so. Pain relievers define clearly the ways, methods, technologies which intend to abolish or – et least – limit those factors that can badly influence the results of teacher learning.

The following questions support you to think about customer gains and identify the most important elements of that. Define the 5 most important elements of the customer gains regarding teacher learning in the frame of the school-university partnership.

- How can you make your customers feel better before, under and after the trainings you provide to support teacher learning? By killing frustrations, annoyances, and other things that give customers a headache. (Organization of the training, professional requirements, way of teaching, evaluation of the performance, etc.)
- How can you fix under-performing solutions? By introducing new features, better performance, or enhanced quality. What pedagogical technology support to achieve better results in teaching and learning? What kind of new programs do you need to elaborate to give relevant responds on the challenges your customers have to face in their daily work?
- How can you eliminate risks your customers fear? In terms of financial, social, technical risks, or things that could potentially go wrong. E.g. support them to use the tools of the digital world; apply diagnostic, formative assessment to support the learning process, etc.
- How can you limit or eradicate common mistakes customers make? By helping them use a solution the right way. E.g. support them to practice the new knowledge and be able to use it relevant way in their daily work. Helping them to understand the research results for doing innovation. Asking them and identifying their critical problems and – using the research as method – elaborate solutions in cooperation with schools.

Value Proposition Canvas – School-University Partnership Focusing on Teacher Learning
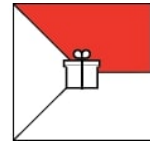
Increasing gains and results for school and the ELTE regarding the teacher learning

Gain creators describe how your products and services create customer gains. They explicitly outline how you intend to produce outcomes and benefits that your customer expects, desires, or would be surprised by, including functional utility, social gains, positive emotions, and cost savings. The gain creators describe clearly how they contribute to the higher-level teacher learning and help the university to keep up-dated its training programs and research activities for schools.

The following questions support you to think about customer gains and identify the most important elements of that. Define the 5 most important elements of the customer gains regarding teacher learning in the frame of the school-university partnership.

- Which savings would make your customers happy? Which savings in terms of time, money, and effort would they value? (How can you make fit the content and organize your training program in harmony with the customers' requirements? How can you achieve or even exceed these requirements?)
- What would make your customers' jobs or lives easier? How can you support the deep learning, the usage of the relevant research results for you customers?
- What positive social consequences do your customers desire? What makes them look good? What increases their power or their status? How can you contribute to increase the prestige of the teaching profession via professionalization? How can you reach a better understanding of the importance of equity and application of teaching methods which lead to it?
- What do customers dream about? What do they aspire to achieve, or what would be a big relief to them? How your trainings and research work can support it?

Value Proposition Canvas – School-University Partnership: POs Role in Doctoral Education
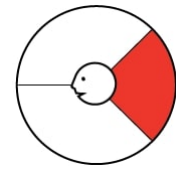
Customer jobs (goals, needs, dreams on behalf of doctoral schools of education and partner organizations)

<u>Customers</u>: *doctoral schools of education and their staff responsible for the preparation of doctoral student; partner organizations and their staff involved into the preparation of doctoral students, doctoral students.*

Jobs describe the things the customers are trying to get done in their work or in their life. A customer job could be the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy.

The following questions support you to think about customer jobs and identify the most important elements of that. Define the 5 most important elements of the customer jobs regarding POs role in doctoral education.

- What are the different contexts that doctoral schools, partner organizations, their staff and doctoral students might be in? How does the academic orientation of DS and practice orientation of POs can provide synergy in preparing future researchers?
- How do POs provide practice place for doctoral students to learn and understand deeply to develop and carry out research plans, apply research methods?
- How doctoral students can contribute to the improvement, innovation at POs based on their special knowledge regarding the research?
- What is the main interest both personal and organizational level on behalf of the actors (doctoral school and their staff, POs and their staff, doctoral students) to cooperate with each other?
- How does the cooperation can increase the quality for all role players?
- What tasks are customers trying to perform in their work or personal life? What functional problems are customers trying to solve? (E.g. building bridge between the academic and practice world; finding relevant research topics which increase the quality of practice; supporting the POs to use best way the research results; supporting doctoral students to think about the researcher job in a complex way (quality of research work, responsibility, ethical issues, usefulness of the results, etc.)
- What goals do you consider most important to increase the quality of doctoral education in the framework of DS-PO cooperation?
- What emotional needs are your customers trying to satisfy? What jobs, if completed, would give the user a sense of self-satisfaction? (Job satisfaction, professionalism etc.)

Value Proposition Canvas – School-University Partnership: POs Role in Doctoral Education

Customer pains (risks, bad feeling or outcome, too much effort, etc.)
Customers: _doctoral schools of education and their staff responsible for the preparation of doctoral student; partner organizations and their staff involved into the preparation of doctoral students, doctoral students._

Pains describe anything that annoys your customers before, during, and after trying to get a job done or simply prevents them from getting a job done. Pains also describe risks, that is, potential bad outcomes of doctoral education, related to getting a job done badly or not at all. Focus on those factors you can influence.

The following questions support you to think about customer pains and identify the most important elements of that. Define the 5 most important elements of the customer pains regarding POs role in doctoral education.

- How do your customers define too „costly"? Takes a lot of time, costs too much money, or requires substantial efforts? (Think on the shared responsibility regarding the education of the doctoral students; the different priorities and values of the two "world", etc.)
- What are the main difficulties and challenges your customers encounter? (Organization of the work of the doctoral students at POs, quality control and management; calculation of the credits; ensure supervisor at POs; embed the doctoral students' activities into the daily work of the POs, etc.)
- How are the current value propositions (as the cooperation was realized in the frame of the EDiTE) under performing for your customers? Which features are they missing? Are there performance issues that annoy them or malfunctions they cite? How do you recognize globally the cooperation between your PO and your partner university, specially, with the DS?
- What barriers are influencing your customer in supporting and realizing the POs-DS cooperation in supporting the learning process of young researchers? (E.g.: lack of prior knowledge and motivation, different work and organizational culture, etc.)
- What negative social consequences do your customers encounter or fear? Are they afraid of a loss of face, power, trust, or status?

Value Proposition Canvas – School-University Partnership: POs Role in Doctoral Education
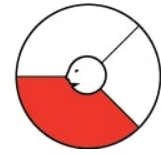
Customer gains, results

<u>*Customers*</u>: *doctoral schools of education and their staff responsible for the preparation of doctoral student; partner organizations and their staff involved into the preparation of doctoral students, doctoral students.*

Gains describe the outcomes and benefits your customers want (what activities, programs, trainings, researches can serve the high-level preparation of doctoral students for their future jobs, tasks). Some gains are required, expected, or desired by customers, and some would surprise them. Gains include functional utility, social gains, positive emotions, and cost savings.

The following questions support you to think about customer gains and identify the most important elements of that. Define the 5 most important elements of the customer gains regarding POs role in doctoral education.

- What would make your customers' jobs or lives easier? Take into consideration the requirements both on organizational and personal level. (How doctoral students can be best prepared for their job? How do researches can support the POs? How does the partnership support to achieve synergy by the role players of the DS and POs?
- What kind of results, gains can be realized on organizational and personal level at POs because of taking part in the EDiTE project?
- What kind of results, gains can be realized on organizational and personal level at the doctoral schools because of taking part in the EDiTE project?
- Do you know what are the greatest professional challenges for DS and POs while they cooperate with each other? If yes, how it can be used for increasing your product and services? (Take into consideration that both POs and DS can take the role of service provider.)
- How do your customers measure success and failure? What are recognized as success or failure personal and organizational level?
- What is the mission for DS and POs in such a cooperation which was established in the EDiTE?

Value Proposition Canvas – School-University Partnership: POs Role in Doctoral Education
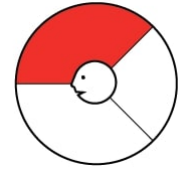
Pain relievers

Customers: doctoral schools of education and their staff responsible for the preparation of doctoral student; partner organizations and their staff involved into the preparation of doctoral students, doctoral students.

Pain relievers describe how exactly your products and services (cooperation between DS and POs for enhancing the possibility and quality of doctoral training program, etc.) alleviate specific customer pains. They explicitly outline how you intend to eliminate or reduce some of the things that annoy your customers before, during, or after they are trying to complete a job or that prevent them from doing so. Pain relievers define clearly the ways, methods, technologies which intend to abolish or – et least – limit those factors that can badly influence the results of doctoral education.

The following questions support you to think about customer gains and identify the most important elements of that. Define the 5 most important elements of the customer gains regarding POs role in doctoral education.

- How can you make your customers feel better before, under and after the trainings you provide to support teacher learning? By killing frustrations, annoyances, and other things that give customers a headache. (Organization of the cooperation between DS and POs, professional requirements towards supervisor at POs, cooperation between supervisors on both sides, help doctoral students to have high level learning environment at both side, etc.)
- How can you fix under-performing solutions? By introducing new features, better performance, or enhanced quality. What pedagogical technology support to achieve better results in preparation of doctoral students? What kind of new activities can be embedded into the doctoral program?
- How can you eliminate risks your customers fear? In terms of financial, social, technical risks, or things that could potentially go wrong. E.g. insufficient use of time at POs by the doctoral students; bad communication and misunderstanding among the participants, etc.
- How can you limit or eradicate common mistakes customers make? By helping them use a solution the right way. E.g. support them to use research results for evidence-based school development and innovation; understanding the ethical issues of the research and usage of the results; understanding the limits of a research; etc.

Value Proposition Canvas – School-University Partnership: POs Role in Doctoral Education

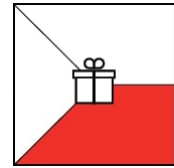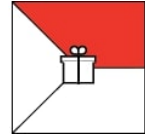**Increasing gains and results for doctoral education**

Customers: doctoral schools of education and their staff responsible for the preparation of doctoral student; partner organizations and their staff involved into the preparation of doctoral students, doctoral students.

Gain creators describe how your products and services create customer gains. They explicitly outline how you intend to produce outcomes and benefits that your customer expects, desires, or would be surprised by, including functional utility, social gains, positive emotions, and cost savings. The gain creators describe clearly how they contribute to the higher-level doctoral education based on the cooperation between doctoral schools and partner organizations.

The following questions support you to think about customer gains and identify the most important elements of that. Define the 5 most important elements of the customer gains regarding POs role in doctoral education.

- Which savings would make your customers happy? Which savings in terms of time, money, and effort would they value? (How can you harmonize the academic program and the PO activities in harmony with the customers' requirements? How can you achieve or even exceed their requirements?)
- What would make your customers' jobs or lives easier? How can you support the deep learning for doctoral students using the possibilities arise from the DS-POs cooperation?
- What positive social consequences do your customers desire?
- What do customers dream about? What do they aspire to achieve, or what would be a big relief to them? How your cooperation between DS and POs can support it?

APPENDICES TO PILLAR 1

Appendix 1. Existing literature reviews and their brief description

Author (year)	Title	Systematic review?	What does it focus on?	Research questions in the article (if any)
Hunt (2014)	A Review of School-University Partnerships for Successful New Teacher Induction	yes	successful new teacher induction	
Handscomb (2014)	School-University Partnerships: Fulfilling the Potential	no	comprehensive overview of the literature, the article has a very broad focus, therefore it is more like an „introduction to the topic"	
Wynn (2018)	Knowledge Barriers in University-Industry Knowledge Networks	no	Through the methodologies of literature review and multiple case study the paper presents the KBs that are highlighted within university-industry knowledge networks	
Thune (2009)	Doctoral students on the university–industry interface: a review of the literature	no	Focusing on doctoral students	1. What theoretical assumptions are made as to the roles doctoral students are expected to fulfil in university–industry relationships? 2. What has been found in empirical research with respect to doctoral students' interaction experience and outcomes of student-industry interaction?
Ramirez (2018)	Co-creation and open innovation: Systematic literature review	yes	Focusing on the concept of open science	1. How many studies are there in the SCOPUS and Web of Science (WoS) databases on open innovation, co-creation of open knowledge and open science, from January 2014 to May 2017, in open access journals? 2. What contexts (academic, business, social, cultural) have been the object of study in open science? 3. What are the challenges for open innovation and the co-creation of knowledge to drive open science?
Vick (2018)	A systematic literature review of UK university–industry collaboration for knowledge transfer: A future research agenda.	Yes	UK context. The review focuses on four central measures related to university–industry (U–I) collaboration for KT that have been previously identified in the literature: motivations; activities; barriers; and outcomes.	1. What is currently known and, more importantly, what is not known about knowledge transfer (KT) between UK universities and industries?
Joao (2018)	University-industry cooperation: A systematic literature review and research agenda	Yes	This study's objectives were to (1) identify the main co-cited references and the groups (i.e. clusters) they form and (2) discuss the challenges this literature presented in the study of university–industry cooperation.	
Rynicek and Konigsgruber (2018)	What makes industry-university collaboration succeed? A systematic review of literature	Yes	"This article presents the results of a systematic review of literature on the collaboration between industry and universities. We perform an extensive analysis of research published on industry-university collaboration projects with the objective of distilling factors that influence the success of such collaborations." (for abstract)	
Ankrah and Al-Tabbaa	Universities-industry collaboration: A systematic review	Yes	"this body of knowledge is still described as fragmented and lacks efficient comprehensive view. To address this gap, we employed a systematic procedure to review the literature on universities—industry collaboration (UIC). The	1. Does the study address the collaboration between Universities and Industry for technology exchange as a main inquiry? 2. Does the study address UIC motivations? 3. Does the study examine UIC forms?

125

			review resulted in identifying five key aspects, which underpinned the theory of UIC" (from abstract)	4. Does the study provide information on the formation and operationalisation of UIC? 5. Does the study include factors that facilitate or inhibit UIC? 6. Does the study mention the outcomes (benefits or drawbacks) of UIC?
Lai (2011)	Collaboration: A Literature Review	No	Collaboration in learning. "The purposes of this literature review are to (a) explore how researchers have defined collaboration; (b) investigate how collaboration skills develop; (c) learn how teachers can encourage development of collaboration skills in their students; and (d) review best practices in assessing collaboration skills"	
Drahota et al (2016)	Community-Academic Partnerships: A Systematic Review of the State of the Literature and Recommendations for the Future Research	Yes	"The purpose of this article is to facilitate the continued growth in this field by examining the characteristics of CAPs and the current state of the science, identifying the facilitating and hindering influences on the collective process, and developing a common term and conceptual definition for use across disciplines."	
Perkmann et al (2013)	Academic engagement and commercialisation: A review of the literature on university-industry relations	No	"A considerable body of work highlights the relevance of collaborative research, contract research, consulting and informal relationships for university-industry knowledge transfer. We present a systematic review of research on academic scientists' involvement in these activities to which we refer as 'academic engagement'."	
Tillvaxtanalys (2018)	University-industry collaboration on innovation: a literature review and synthesis	Yes	"The purpose of this study is to use qualitative content analysis to map factors that stimulate the formation of collective relations. We conduct a systematic review of the academic literature on university-industry collaboration and identify 40 frequently-cited articles from the database Web of Science."	
Connolly et al (2016)	Inter-School Collaborations for Improving Educational and Social Outcomes for Children and Young People: A Systematic Review	Yes	Inter-school collaboration	1. Do inter-school collaborations improve educational and social outcomes for students? 2. Do differing types of inter-school collaboration lead to different effects on educational and social outcomes for students? If so, which types of inter-school collaboration are most effective? 3. From each core type of inter-school collaboration, is it possible to identify whether there are key characteristics that optimise their effectiveness on educational and social outcomes for students? 4. Do inter-school collaborations have differing effects for students depending on their initial levels of attaining, their socio-economic backgrounds, their gender, their ethnicity and/or their minority status? If so, do these differential effects vary in relation to differing types of inter-school collaboration?
Hein Broekkamp ab; Bernadette van Hout-Wolters b (2007)	The gap between educational research and practice: A literature review, symposium, and questionnaire	yes	"The selected literature was used to develop, in an inductive way, a comprehensive inventory of the problems, causes, and solutions concerning the research-practice gap".	
De Geest, S., Dobbels, F., Schoenfeld, S., Duerinckx, N., Sveinbjarnardottir, E. K., & Denhaerynck, K. (2013).	Academic Service Partnerships: What do we learn from around the globe? A systematic literature review	yes	Identification of structured ASPs in nursing worldwide and to describe their characteristics	
Davey, P., & de Vries, P. (2004).	Enterprising partnerships: Incubating learning	No	VET - Industries partnership	

Appendix 2. Review protocol

REVIEW PROTOCOL FOR PILLAR 1 OF SUP RESEARCH

Objective

The objective of this task is to identify, appraise and synthesize all relevant studies on the topic of school-university partnerships in order to contribute to a better understanding of transformative teacher learning for better student learning within an emerging European context (EDiTE context).

The aim of the literature review is to explore the characteristics of different partnerships models that universities are involved in.

Review questions

1. What are the characteristics of university-school collaboration based on empirical research data?

2. What evidence does the existing empirical research data provide on the different functions of university-business partnerships? (functions: learning of actors, research, school/university development, program improvement)

Key descriptors/key terms

- Synonyms for the education part:
    - school
    - university
    - higher education
- Synonyms for the collaboration part:
    - collaboration
    - partnership
    - cooperation
- Synonyms for the networking part:
    - network
    - circle
    - community

Population

The publication MUST involve university/university staff AND schools/school staff.

- public schools, teachers (pre-service to in-service)
- universities, university staff

Databases

EBSCO, ERIC, Google Scholar, EU documents

Time period

- 2009 -

Language

- English

Type of publication

- peer-reviewed journals
- books
- published project reports
- dissertations

Geographical focus

- Europe (EDiTE context)
- Australia, New Zealand
- United States, Canada

Criteria for exclusion at any point of the process (the reason shall be recorded)

- inappropriate population
- inappropriate time period
- inappropriate language
- inappropriate type of publication
- inappropriate geographical focus

- reviews and non-empirical publications will be recorded, but excluded from further analysis

Appendix 3. Code system

IDENTIFICATION	**Coder**	Coder's name
	Author(s)	Article's author(s) in one of the following formats: Last name, Initial(s) of first name(s) OR Last name, first name(s). Please check it in the article if the name is correctly indicated here.
	Year of publication	Year of publication, please use four digits
	Title	Title of the publication, only the first letter and letters after punctuations (. : ? -) shall be capital letters
KEYWORDS	**1. Keyword defined by the author(s)**	Please copy-paste the keywords that the author(s) defined in the article. There are five slots, so you can code five different keywords. In case there are more than five keywords in the article, please copy-paste the 6th, 7th... etc. keywords into the last slot (in coloumn I) and mark it with yellow background.
	2. Keyword defined by the author(s)	
	3. Keyword defined by the author(s)	
	4. Keyword defined by the author(s)	
	5. Keyword defined by the author(s)	
STUDY CHARACTERISTICS	**Geographical scope - country**	Where was the study conducted? Country is enough
	Type of publication	Choose one from the drop-down list
	Methodological approach	Choose one from the drop-down list
	Scope1 - International	Does the study cover data/cases/etc. from more countries? Choose one from the drop-down list
	Scope2 - National	Does the study cover data/cases/etc. from one country? Choose one from the drop-down list
	Scope3 - Regional	Does the study cover data/cases/etc. from a specific region (part of a country, more

		setllements, etc.)? Choose one from the drop-down list
	Scope4 - Settlement-wise	Does the study cover data/cases/etc. from one settlement/one city? Choose one from the drop-down list
	Scope5 - Institutional	Does the study cover data/cases/etc. regarding specific institutions? Choose one from the drop-down list
	Scope6 - Individual	Does the study focus on the individual aspects? Choose one from the drop-down list
	School levels	ISCED 1 - elementary/primary school ISCED 2 - lower secondary OR in some countries upper elementary school ISCED 3 - upper secondary school Choose one from the drop-down list
RESEARCH QUESTIONS	**1. Research question**	Please copy-paste the research questions that the author(s) defined in the article. There are seven slots, so you can code seven different research questions. In case there are more than seven research questions in the article, please copy-paste the 8th, 9th... etc. research questions into the last slot (in coloumn Z) and mark it with yellow background. If there are main and sub-research questions, indicate these with numbering (eg. 1. Main research question, 1.1 Sub-question for the first research question, etc.)
	2. Research question	
	3. Research question	
	4. Research question	
	5. Research question	
	6. Research question	
	7. Research question	
THEORETICAL, ANALYTICAL FRAMEWORK	**1. Theoretical/analyitical framework**	Please indicate here the main theories that the article is based on (short, 1-2 sentence description) and used in the analysis. There are four slots, so you can code four different theories. In case there are more than four theories in the article, please indicate the 5th, 6th... etc. theory into the last slot (in coloumn AD) and mark it with yellow background.
	2. Theoretical/analyitical framework	
	3. Theoretical/analyitical framework	
	4. Theoretical/analyitical framework	
METHODOLOGY (PARTICIPANTS,	**1. Participants/Sample**	Please indicate in these slots the participants/sample, its size, the data
	1. Sample size	

132

SAMPL SIZE, DATA COLLECTION, ANALYSIS)	**Data collection tool for 1. sample**	collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	Method of analysis for data of 1. sample	
	2. Participants/Sample	Please indicate in these slots the participants/sample, its size, the data collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	2. Sample size	
	Data collection tool for 2. sample	
	Method of analysis for data of 2. sample	
	3. Participants/Sample	Please indicate in these slots the participants/sample, its size, the data collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	3. Sample size	
	Data collection tool for 3. sample	
	Method of analysis for data of 3. sample	
	4. Participants/Sample	Please indicate in these slots the participants/sample, its size, the data collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	4. Sample size	
	Data collection tool for 4. sample	
	Method of analysis for data of 4. sample	
ACTIVITIES OF COLLABORATION	**Activity 1.**	In case there are specific activities of collaboration indicated in the article, code them here. Each activity shall go to a different slot from coloumns AU to BA. In case there are more than seven activities in the article, please indicate the 8th, 9th... etc. activity into the last slot (in coloumn BA) and mark it with yellow background.
	Activity 2.	
	Activity 3.	
	Activity 4.	
	Activity 5.	
	Activity 6.	
	Activity 7.	
CHARACTERISTICS OF COLLABORATION	**Leader of collaboration**	Choose one from the drop-down list. In case it is other (none of the list items, just type the data in the cell.

SAMPLE SIZE, DATA COLLECTION, ANALYSIS)	Data collection tool for 1. sample	collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	Method of analysis for data of 1. sample	
	2. Participants/Sample	Please indicate in these slots the participants/sample, its size, the data collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	2. Sample size	
	Data collection tool for 2. sample	
	Method of analysis for data of 2. sample	
	3. Participants/Sample	Please indicate in these slots the participants/sample, its size, the data collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	3. Sample size	
	Data collection tool for 3. sample	
	Method of analysis for data of 3. sample	
	4. Participants/Sample	Please indicate in these slots the participants/sample, its size, the data collection tool, and the method of analysis. You may code up to 4 different sample/size/data collection tool/method of analysis from coloumns AE to AT.
	4. Sample size	
	Data collection tool for 4. sample	
	Method of analysis for data of 4. sample	
ACTIVITIES OF COLLABORATION	Activity 1.	In case there are specific activities of collaboration indicated in the article, code them here. Each activity shall go to a different slot from coloumns AU to BA. In case there are more than seven activities in the article, please indicate the 8th, 9th... etc. activity into the last slot (in coloumn BA) and mark it with yellow background.
	Activity 2.	
	Activity 3.	
	Activity 4.	
	Activity 5.	
	Activity 6.	
	Activity 7.	
CHARACTERISTICS OF COLLABORATION	Leader of collaboration	Choose one from the drop-down list. In case it is other (none of the list items, just type the data in the cell.

	Is the collaboration formal or informal?	Choose one from the drop-down list
	Is it about school-university partnership, or some other actors?	Choose one from the drop-down list. In case it is other (none of the list items, just type the data in the cell.
	What is in the focus of the collaboration1? Teacher education (eg. practice of student teachers, etc.)	Choose one from the drop-down list
	What is in the focus of the collaboration2? Continuous development of in-service teachers	Choose one from the drop-down list
	What is in the focus of the collaboration3? School development	Choose one from the drop-down list
	What is in the focus of the collaboration? Research	Choose one from the drop-down list
	Please provide an elaborated description of the focus of the collaboration	Bear in mind that this will be used in the analysis, so try to write it in a manner that is informative for others, so that the persons doing the analysis do not have to read the article to understand it.
	Does the collaboration focus on one specific subject/field/topic?	Does the article report on collaboartion regarding a specific subject/field/topic (e.g. teaching Maths)? In case yes, please just type the specific subject(s)/field/topics in the cell. Use keywords.
	Do the author(s) link the collaboration/partnership to innovation?	Do the author(s) mention innovation in relation to the collaboratipn/partnership?
FINDINGS	**Major findings 1.**	Please copy-paste or summerize the major findings that the author(s) defined in the article. There are five slots, so you can code five different major findings. In case there are more than five major findings in the article, please copy-paste the 6th, 7th... etc. major
	Major findings 2.	
	Major findings 3.	
	Major findings 4.	
	Major findings 5.	
		findings into the last slot (in coloumn BP) and mark it with yellow background.
LIMITATIONS, IMPRESSIONS	**Limitations of the study**	Have the authors indicated any limitations of the study? Please summarize them here.
	Impressions/comments of the coder	What were your impressions while reading the article? Is there anything very important that would be worth to include in the analysis/final report but could not be coded previously?

Appendix 4. Thematic analysis of research questions in the studies

Research question label	Occurance	%
administrator's function	1	1,3
assessment	1	1,3
boundary crossing	1	1,3
collaboration	1	1,3
communities of practice	1	1,3
components of ITE programmes	1	1,3
co-teaching	1	1,3
curriculum development	1	1,3
evaluation - policy reform	1	1,3
evaluation - program	1	1,3
evaluation - project	1	1,3
expectations	1	1,3
experience sharing	2	2,5
forced partnership	2	2,5
improve SUP	2	2,5
knowledge management	3	3,8
mentoring	3	3,8
challenges/issues of SUP	3	3,8
highlights of SUP	3	3,8
practicum	3	3,8
principal's role	3	3,8
research collaboration	4	5,1
routes into teaching	6	7,6
STEM	5	6,3
teacher competences	5	6,3
teacher preparation	6	7,6
teaching	17	21,5
Total:	**79**	**100,0**

APPENDICES TO PILLAR 2

Appendix 1. Questionnaire for Partner Organisation representatives (EDiTE context)[19]

Dear **Partner Organisation Representative**,

This questionnaire aims to look at the available knowledge generated within the scope of EDiTE in order to understand the potential benefits, issues and solutions for partnership between schools and universities. It draws on the experiences and information gathered from direct stakeholders and actors involved in four years of implementing EDiTE. Hence, the questionnaire is part of a research attempt designed with the aim to explore and understand the essence of these collaborations and gather ideas for the future.

This is an **anonymous questionnaire**. We value your feedback, and the answers you provide will be used to improve the partnership of universities and partner organisations and contribute to the sustainability of the EDiTE model. The questionnaire takes approximately 20-30 minutes to answer and it includes closed- and open-ended questions. Please feel free to respond according to your own experiences and opinions, as well as to skip those answers you do not find relevant.

Please click on Next to start the questionnaire.

Background information

Q1 How long have you been part of the EDiTE partnership?

(One possible answer)

From the beginning

We joined in the first year

We joined in the second year

We joined in the third year

I don't know / I don't want to answer

Q2 What were your motivations to start a relationship with EDiTE? You can mark more than one answer.

(More possible answers)

The topic was interesting

It was based on a previous collaboration or friendship

A formal invitation from the university

To broaden the partnership portfolio of our organisation

To provide a learning opportunity for the staff

I don't know / I don't want to answer

---

[19] This questionnaire was modified (language-wise only, the questions themselves remained the same) and used in the cases of researchers and university staff, too.

Other

Q3 Did the EDiTE partner university have previous relationship/contact (preceding the EDiTE programme)with your organisation?

(One possible answer)

Yes

No

I don't know / I don't want to answer

Partnership model

Q4 Which partnership model did your organisation and the EDiTE partner university follow?

(One possible answer)

The "simple model" – mutual visits, information sharing, at least one yearly meeting

The "structured model" – e.g. supporting ESRs to conduct their field research in the partner organisations

The "intensive model" – partners intensively engage in common knowledge sharing and creating activities

I don't know / I don't want to answer

Other

Benefits

Q5 and Q6 In your opinion, how important are the following benefits of school-university partnership cooperation in general? How much have you gained through these? Please mark your answers on a scale from *not important at all* to *very important*.

Item	Importance	How much have you gained?
Supporting the doctoral students in acquiring practical experiences and realising the empirical part of their research	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting mutual knowledge sharing and learning between the universities and their partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting the transformative potential of teachers, schools and other partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting national horizontal sharing of knowledge and good practices between partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting cross-national horizontal sharing of knowledge and good practices between partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Improvement of the image of our organization	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting doctoral schools to improve their programme based on the experiences of partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting partner organisations to improve their learning capacity based on their own experiences	*Likert 1-6 + "I don't know / I don't want to answer"*	*Likert 1-6 + "I don't know / I don't want to answer"*

Q7, Q8 and Q9 Can you name any other benefits not included in the list above of school-university partnership cooperation in general? If yes, please share what this benefit is.

(Open question, optional)

How important is this benefit you named? How much have you gained through it? Please mark your answers on a scale from *not important at all* to *very important*.

For importance: Likert 1-6 + "I don't know / I don't want to answer"

(Optional)

For benefit: Likert 1-6 + "I don't know / I don't want to answer"

(Optional)

Q10 Please comment on your answers above.

(Open question, optional)

Q11 Would you recommend the participation in a similar partnership programme to another organisation like yours?

Likert 0-10 (0 – not at all, 10 – most definitely + "I don't know / I don't want to answer")

<div align="center">

Challenges

</div>

Q12 In your opinion, what are the limitations of school-university partnership cooperation in general? Please drag the statements, moving *the most important* to the first place (place number 1) and *the least important* to the last place (place number 9).

Lack of motivation

Limited time availability

Inadequate language skills

Insufficient expert knowledge

Differing perspectives or approaches

Administrative/organisational demand

Lack of relevant conception of cooperation

Lack of sense of external relationships (third mission) within the higher education institutions

Lack of development programme or concept at the national level

Other

Q13 Can you name any other limitation of school-university partnership cooperation in general, at the level of the doctoral school? Please specify.

(Open question, optional)

<div align="center">

Agency

</div>

Q14 Could you describe an example of your involvement in the school-university partnership?

(Open question)

Q15 Has your involvement changed during the project lifetime?

(One possible answer)

There was no involvement

No, it has not changed, my involvement <u>remained the same</u> during the project lifetime

Yes, it has changed – I became <u>more involved</u> than at the beginning

Yes, it has changed – I became <u>less involved</u> than at the beginning

I don't know / I don't want to answer

Q16 How big of an impact have the following agents made on the school-university cooperation? Please rate the impact of the agents on a scale from *no impact at all* to *very big impact*.

Item	Impact
Partner organisation head	*Likert 1-6 + "I don't know / I don't want to answer"*
Partner organisation staff	*Likert 1-6 + "I don't know / I don't want to answer"*
National representative of partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
University-based project leader	*Likert 1-6 + "I don't know / I don't want to answer"*
University teachers	*Likert 1-6 + "I don't know / I don't want to answer"*
Researchers (ESRs/SFRs)	*Likert 1-6 + "I don't know / I don't want to answer"*
University administration	*Likert 1-6 + "I don't know / I don't want to answer"*

Q17 and Q18 Can you name any other agent that has had an impact on the school-university partnership cooperation? If yes, please share who this agent is.

(Open question, optional)

How big of an impact has this agent made on the school-university cooperation? Please rate your answer on a scale from *no impact at all* to *very big impact*.

Likert 1-6 + "I don't know / I don't want to answer"

(Optional)

Q19 In your opinion how important is the role of the school-university partnership in supporting the learning process of the following actors? Please rate your answer on a scale from *not important at all* to *very important*.

Item	Importance of the role
Doctoral school	*Likert 1-6 + "I don't know / I don't want to answer"*
Partner organisation	*Likert 1-6 + "I don't know / I don't want to answer"*
The researchers (ESRs and SFRs)	*Likert 1-6 + "I don't know / I don't want to answer"*

Supporting academic links

Q20 How important are the following statements within the EDiTE project according to your opinion? Please rate the statements on a scale from *not important at all* to *very important*.

Item	Importance
Programme and course design should take into account the learning opportunities provided by the partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Institutional (university level) and individual (doctoral students' level) research projects should include different types of fieldwork in partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Outcomes of PhD researches should be made available for the partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Partner organisations should be invited to EDiTE public academic events (academic debates, public defences etc.)	*Likert 1-6 + "I don't know / I don't want to answer"*
Supervisors should be informed about partner organisations and be encouraged to use their capacities when supporting the research and learning of their doctoral students	*Likert 1-6 + "I don't know / I don't want to answer"*
Interactions between EDiTE-EJD universities and partner organisations should support knowledge creation and knowledge sharing	*Likert 1-6 + "I don't know / I don't want to answer"*
The consortium should support the efforts of partner organisations to establish direct, horizontal cooperation among them and the emergence of a European network of EDiTE partners	*Likert 1-6 + "I don't know / I don't want to answer"*

Q21 Is there anything else you would like to add to the list of statements above? If yes, please specify.

(Open question, optional)

Q22 In case you have answered the previous question, please rate its importance on a scale from *not important at all* to *very important*.

Likert 1-6 + "I don't know / I don't want to answer"

(Optional)

Q23 How do you rate the usefulness of the following EDiTE partner organisation-related programmes, events? Please rate the usefulness of the enlisted programmes, events on a scale from *it was not useful at all* to *it was very useful*.

PO-related programme	Usefulness
Kick-off meetings (or 1st national meeting)	*Likert 1-6 + "I don't know / I don't want to answer" + "I did not attend"*
2nd national meeting	*Likert 1-6 + "I don't know / I don't want to answer" + "I did not attend"*
3rd national workshop	*Likert 1-6 + "I don't know / I don't want to answer" + "I did not attend"*
Final national meeting	*Likert 1-6 + "I don't know / I don't want to answer" + "I did not attend"*
EDiTE partner organisation networking event, Wroclaw, 21 June 2017	*Likert 1-6 + "I don't know / I don't want to answer" + "I did not attend"*

Q24 and Q25 Is there any other EDiTE PO-related programme, event you would like to add to the list above? Please specify.

(Open question, optional)

Q25 In case you have answered the previous question, please rate the specified programme's, event's usefulness on a scale from *not important at all* to *very important*.

Likert 1-6 + "I don't know / I don't want to answer" + "I did not attend"

(Optional)

Future/Sustainability

Q26 Do you intend to continue this partnership?

(One possible answer)

    Yes

    No

    I don't know / I don't want to answer

Q27 If you were asked to join a similar partnership, would you do that?

(One possible answer)

Yes

No

I don't know / I don't want to answer

Q28 Among the potential focus points of further research on school-university partnership listed below, please rank the answers, giving 1 to *the most important* and 9 to *the least important* focus point.

Impacts of institutional partnership on teacher learning and development

Impacts of institutional partnership on educational research and innovation

Personal benefits of individuals involved in the institutional partnership

Benefits for institutions involved in partnerships

The relevance of institutional partnership for PhD research projects

Communication efficiency and channels used in institutional partnerships

Purposes, obstacles and use of institutional partnership

Reciprocity and balance in work-load and benefits in institutional partnership

Other

Q29 Can you name any other potential focus point of further research on school-university partnership ? Please specify.

(Open question, optional)

Q30 In your opinion, how much do you think is your institution interested in using the research results obtained/collected by researchers in EDiTE programme? Please rate the interest on a scale from *no interest at all* to *very high interest*.

Likert 1-6 + "I don't know / I don't want to answer"

Q31 If you had to decide to join EDiTE right now, would you join again? Please rate your answer on a scale from *not at all* to *in any case*.

Likert 0-10 + "I don't know / I don't want to answer"

Q32 What is your overall satisfaction with the EDiTE school-university partnership? Please rate your answer on a scale from *not at all* to *very high*.

Likert 0-10 + "I don't know / I don't want to answer"

Q33 Please suggest topics of your interest related to school-university partnership.

(Open question)

THANK YOU FOR YOUR CONTRIBUTION!

Appendix 2. Questionnaire for school representatives (Hungarian context)

Dear Participant,

With this questionnaire we aim to contribute to the understanding of the potential benefits, issues and solutions for partnership between schools and universities.

This questionnaire is part of the School University Partnership research project, and is conducted within the framework of the European Doctorate in Teacher Education (www.edite.eu) under the umbrella of the Marie Sklodowska Curie actions funded by the European Union's initiative Horizon 2020. The research is conducted by a team at Eötvös Loránd University, Institute of Education.

This is an **anonymous questionnaire**. We value your feedback, and the answers you provide will be used to improve the partnership of universities and partner organisations and contribute to the sustainability of such partnerships. The questionnaire takes approximately 10-15 minutes to answer and it includes closed- and open-ended questions. Please feel free to respond according to your own experiences and opinions, as well as to skip those answers you do not find relevant.

Please click on Next to start the questionnaire.

Background information

Q1 Is your school involved in a partnership (formal or informal) with a university?
(One possible answer)

Yes
No ------> Questionnaire terminates

Background information

Q2 In which county is your institution?
(One possible answer)

Q3 What type of education is your institution responsible for?

(More possible answers)

Basic school

Grammar school

Integrated school (basic and grammar school)

Vocational grammar school

Vocational secondary school

Other

I don't know / I don't want to answer

Q4 How many universities do you have partnership with?
(One possible answer)
1
2
3
 More than 3
I don't know / I don't want to answer

Q5 What is the nature of these partnerships? Are they formal (there is a written agreement between your school and the university) or informal (there is no written agreement, the partnership is manifested in activities)?
(One possible answer)
All of them are formal
All of them are informal
There are formal and informal partnerships
I don't know / I don't want to answer

Q6 Does your institution have a partnership with universities from abroad?

(One possible answer)
Yes

No

I don't know / I don't want to answer

Q7 Based on your experience, what keywords would you use to describe school-university partnerships?

(Open question, optional)

Q8 For the following set of questions please think of one particular partnership your school has with a university. On a scale from 1 to 6, how much do you agree with these statements?
(Likert 1-6 + "I don't know / I don't want to answer")

Item	Agreement
The purpose of the partnership was identified in a joint manner by the school and the university.	*Likert 1-6 + "I don't know / I don't want to answer"*
The university has been able to influence our school's teaching practice.	*Likert 1-6 + "I don't know / I don't want to answer"*
Our school has benefited from the partnership with the university.	*Likert 1-6 + "I don't know / I don't want to answer"*
The school staff and the university staff worked closely together for a common purpose.	*Likert 1-6 + "I don't know / I don't want to answer"*
Our school has been able to influence the university's practice.	*Likert 1-6 + "I don't know / I don't want to answer"*

Q9 In your opinion, how important are the following benefits of school-university partnerships?

(Likert 1-6 + "I don't know / I don't want to answer")

Item	Importance
Supporting mutual knowledge sharing and learning between the universities and their partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting the transformative potential of teachers, schools and other partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting national horizontal sharing of knowledge and good practices between partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting cross-national horizontal sharing of knowledge and good practices between partner organisations	*Likert 1-6 + "I don't know / I don't want to answer"*
Improvement of the image of our institution	*Likert 1-6 + "I don't know / I don't want to answer"*
Supporting partner organisations to improve their learning capacity based on the experiences of school-university partnership	*Likert 1-6 + "I don't know / I don't want to answer"*

Q10 Can you name any other benefits not included in the list above of school-university partnerships? If yes, please share what this benefit is.

(Open question, optional)

Challenges

Q11 In your opinion, what are the limitations of school-university partnerships? Please rank the answers, giving 1 to *the most important* and 9 to *the least important* aspect.

(Ranking)

Lack of motivation

Limited time availability

Inadequate language skills

Insufficient expert knowledge

Differing perspectives or approaches

Administrative/organisational demand

Lack of relevant conception of cooperation

Lack of sense of external relationships (third mission) within the higher education institutions

Lack of development programme or concept at the national level

Q12 Can you name any other limitation of school-university partnerships? Please specify.

(Open question, optional)

<table>
<tr><td>**Future/Sustainability**</td></tr>
</table>

Q13 Among the potential focus points of further research on school-university partnership listed below, please rank the answers, giving 1 to *the most important* and 8 to *the least important* focus point.

(Ranking)

Impacts of institutional partnership on teacher learning and development

Impacts of institutional partnership on educational research and innovation

Personal benefits of individuals involved in the institutional partnership

Benefits for institutions involved in partnerships

The relevance of institutional partnership for PhD research projects

Communication efficiency and channels used in institutional partnerships

Purposes, obstacles and use of institutional partnership

Reciprocity and balance in work-load and benefits in institutional partnership

Q14 Can you name any other potential focus point of further research on school-university partnership that is not listed above? Please specify.

(Open question, optional)

THANK YOU FOR YOUR CONTRIBUTION!

APPENDICES TO PILLAR 3

Appendix 1: Interview protocol for researchers

Introduction and confidentiality
This interview is a part of a small research done by a team at ELTE and with an aim to better understand the qualities of collaboration between schools and universities in the framework of European Doctorate in Teacher Education (EDiTE).

Thank you for your time and for agreeing to talk about your experiences regarding this topic. We have created an interview guide with some questions, but since this is a semi-structured interview, we can start with first couple of questions and then focus more on those that are relevant to you. In a way, we can consider this a conversation between two of us about your experiences and opinions. Please feel free to ask if a question is unclear.

The interview usually lasts around 30 minutes, and it really depends on how much time you have and how good we feel in talking about this topic. Your answers are all confidential and we will not use any names or other identifying elements. If there are any questions after the interview, please feel free to contact me directly and I will try to answer them.

Part 1: SUP experiences
1. Could you tell me a little bit about your research work in EDiTE?
2. In what ways did you research reflect the school realities?
3. How did you manage to collect your data? Could you briefly describe one day/occasion that could represent your experience in working with a school?
4. Who did you talk with and how did you get the access to the school (what channel did you use EDiTE/your own connections/something else)? Can you tell me a bit about this collaboration?
5. Except of collecting data, did you have any other reasons or motives that made you consider collaborating with schools?
6. And what would you think were the reasons from the school? Why do you think they wanted to collaborate?

Part 2: Future opportunities
7. As you reflect on your collaboration with schools, is there anything you would identify as a lost opportunity? Something that you realise now that could be better exploited or done differently?
8. Have you shared some of your findings with them and in what way? Do you think you contributed or helped the school by collaborating through your research and, if yes, in what ways?
9. Do you think you will continue collaborating with the school in some way and, if yes, how?
10. If you would do your research again, or if you would prepare a new one within the same field of study, would collaboration with schools be an integral part of it? And how would you do it?

Closing
Thank you for the answers and the time you dedicated for this interview. The information is really useful for us to understand the qualities of collaboration between universities and schools at the very practical level.

Is there anything else that you might think is important and was not covered through these questions?

Thank you once again!

Appendix 2: Interview protocol for heads of the programme, supervisors and administrative staff

Introduction and confidentiality

This interview is a part of a small research done by a team at ELTE and with an aim to better understand the qualities of collaboration between schools and universities in the framework of European Doctorate in Teacher Education (EDiTE).

Thank you for your time and for agreeing to talk about your experiences regarding this topic. We have created an interview guide with some questions, but since this is a semi-structured interview, we can start with first couple of questions and then focus more on those that are relevant to you. In a way, we can consider this a conversation between two of us about your experiences and opinions. Please feel free to ask if a question is unclear.

The interview usually lasts around 30 minutes, and it really depends on how much time you have and how good we feel in talking about this topic. Your answers are all confidential and we will not use any names or other identifying elements. If there are any questions after the interview, please feel free to contact me directly and I will try to answer them.

Part 1: SUP experiences
1. Could you tell me a little bit about your role in EDiTE?
2. In what ways did your work relate to schools within the framework of EDiTE?
3. How did you manage to connect to schools as partners? Could you briefly describe one example of establishing collaboration?
4. Did you support EDiTE researchers to use the connections with the school(s) and, if yes, in what ways? Can you tell me a bit about this three-way collaboration between you, the EDiTE researcher and the schools?
5. Why would you say it was important to establish these relations?
6. And what would you think were the reasons from the school? Why do you think they wanted to collaborate with particular EDiTE researchers and/or be a part of EDiTE network?

Part 2: Future opportunities
7. As you reflect on the collaboration established with schools through EDiTE, is there anything you would identify as a lost opportunity? Something that you realise now that could be better exploited or done differently?
8. Is there anything you thing could serve as an outcome for schools? To your knowledge, have any of the results been shared? Where there any other things that you saw as direct benefits for the schools involved?
9. Will you continue the collaboration with schools and, if yes, how?
10. If you would participate in such a network again and you would need to prepare it from scratch, would collaboration with schools be an integral part of it? And how would you do it?

Closing

Thank you for the answers and the time you dedicated for this interview. The information is really useful for us to understand the qualities of collaboration between universities and schools at the very practical level.

Is there anything else that you might think is important and was not covered through these questions?

Thank you once again!

Appendix 3: Interview protocol for representatives of partner organisations

Introduction and confidentiality

This interview is a part of a small research done by a team at ELTE and with an aim to better understand the qualities of collaboration between schools and universities in the framework of European Doctorate in Teacher Education (EDiTE).

Thank you for your time and for agreeing to talk about your experiences regarding this topic. We have created an interview guide with some questions, but since this is a semi-structured interview, we can start with first couple of questions and then focus more on those that are relevant to you. In a way, we can consider this a conversation between two of us about your experiences and opinions. Please feel free to ask if a question is unclear.

The interview usually lasts around 30 minutes, and it really depends on how much time you have and how good we feel in talking about this topic. Your answers are all confidential and we will not use any names or other identifying elements. If there are any questions after the interview, please feel free to contact me directly and I will try to answer them.

Part 1: SUP experiences
1. Could you tell me a little bit about your work in the school?
2. How did you find out about EDiTE? Can you briefly describe how you joined this network? Who did you first talk to and how did it all start?
3. In the last three and a half years, what did the collaboration look like? Did you have researchers and coordinators visiting the school? Can you briefly describe one such visit?
4. What were the main reasons or motives that made you consider collaborating with researchers, the university and this particular programme?
5. What do you think were the motives of the university and the researchers?
6. What is the best outcome for you and the school that came out of this collaboration?

Part 2: Future opportunities
7. As you reflect on your collaboration within EDiTE, is there anything you would identify as a lost opportunity? Something that you realise now that could be better exploited or done differently?
8. Is there anything you think the school could have offered to the researchers other than what you already described?
9. And what about the universities and the researchers, have they shared some of their findings with you and what way? Was this useful?
10. Do you intend to continue collaborating with the university and, if yes, in what way?
11. If you would be asked to join a similar network again, would you consider it? And how would you do it?

Closing

Thank you for the answers and the time you dedicated for this interview. The information is really useful for us to understand the qualities of collaboration between universities and schools at the very practical level.

Is there anything else that you might think is important and was not covered through these questions?

Thank you once again!

Appendix 4: Code book

	Code name	Full description	Example
1	Research design (Methodological considerations)	Examples where interviewees talk about methodology as important for establishing good (or better) partnership	"With quantitative study they would not be interested in this. But what was interesting here is that I have a book and I have my notes and I can take it out and read to them. And I also did a little drawing of the situation, where one is sitting and one is looking here, and when students gave me stuff I put it in the notebook." "we are designing the project to think of possible partners where we want to do relevant work that we address the issues that the school is facing by thinking that "which schools will be benefits from this project?" or "What kind of research can we design to address the problem that this school is facing?".
2	Study goals	Examples of research aims and objectives (goals) particularly interesting for the school-university partnership development	"Goal was to resemble a school reality" "In my studies, I also look at how teacher learns about, to be specific, as I am focusing on assessment in order to support learning. So, when I focus on learning which also take care of the second theme of EDiTE project, that is, better student learning."
3	Range of partners	Mentions of institutions and people, and evidence of the different status and position they hold ing the partnership	"I spoke to director, the principal of the school, I spoke to the social workers and special pedagogues" "At the same time, we also have the different kinds of partner, national education council which was not the schools. During the project, we extend the partners organizations to include other schools partners."
4	Non-partners	Mentions of people or institutions which played a role in school-university partnership but were not	"Not all of the schools were part of EDiTE"

		assigned as partners in the initial proposal	"they also become another partner schools. But we also had a chance to work with non-official partner schools, they are also work with us in education but they are not the official-partner for EDiTE, mainly because of the bureaucratic reason."
			"Even though they are not officially recognized as our EDiTE partners. The other was we have the occasional partner where we contacted with schools of Portugal, not only in Lisbon, for example very far from north of Portugal or middle of the Portugal."
5	Key contacts (for partnership)	Mentions of people that act as key contacts for the partnership between schools and universities	"First meeting in the school with the principal, head-teacher and vice principal"
			"Some of the other schools, I used my contact to get to visit to school and visit and see their education program. I had a contact with them, so I talked with them and arrange for the visit. Some of the schools, we don't have contact with. So, our technical secretary had to do this. So, first she made the connection first and then she arranged for the visit. So, we started our relationship with email and then we also went in person to the schools also, and carried out the visit."
6	Recruitment methods	Examples of the ways recruitment of partners happened (both with existing and new ones)	"Some I have recruited myself"
			"One of our ESR colleagues was a primary teacher in Czech Republic. She works in Czech schools and she has a connection with schools. And she has teacher friends and she connected me to her friends and then through her friends, like snow balling, that is how I manage to get the other teachers in my research."
			"One of the examples will be that we are also starting another project, looking into another thing. Where we are looking into

			are our local partner schools to participate in our project. We almost tried when we are designing the project to think of possible partners where we want to do relevant work that we address the issues that the school is facing by thinking that "which schools will be benefits from this project?" or "What kind of research can we design to address the problem that this school is facing?"."
7	Differences in partnerships (country)	Examples of situations where partnerships were different according to the placement of research	"In every country it was different"
8	Needs-based negotiations	Examples of talks or negotiations where aims, objectives or purpose of the researchers' visits to schools is discussed or decided and when they are set according to the needs of one or more partners.	"And we talked about what I want and what I need, the special needs. The last grade of the primary school was my goal"
9	EDiTE partners	Descriptors of partners that were original to the EDiTE project (in the initial proposal)	"The one that was part of the project was extremely welcoming, interested, they wanted conversations with me, everything was possible" "under the project, we have school university partnership organization and we have one partner school and I got one teacher from that school. I manage to get one teacher because our university under the project has one partner school." "I got only one teacher from school-university partnership because our university has only one partner school."
10	Difficulty (language)	Examples of hurdles and bottlenecks particularly connected to foreign language than the mother	"It's difficult to get access in the schools especially when you're not native"

		tongue of the researchers/teachers	
11	Difficulty (not 100% on board)	Examples of hurdles and bottlenecks connected to teachers involved in the partnership	"The teachers were not 100% on board" "So they were not very happy about it, and I could also tell from the way they communicated with each other." "But in most partnership, mainly the school teachers were not willing to provide their time because this required the extra time, of course. And unfortunately, they are giving their extra time, because this is an additional time from their everyday schedule."
12	Difficulty (teachers' scepticism)	Examples of hurdles and bottlenecks connected to teacher in terms of their scepticism	"Teachers themselves were sceptical so out of full school day I would probably see sports and the first lesson, and the second lesson maybe math"
13	Difficulty (with partners)	Examples where some characteristics of partners became a difficulty for the research or partnership	"But her lack of professionalism in this job, because she was very new to it, made it difficult to sometimes reflect what was actually happening, because she was a starter in her job and she was also surviving on her own in this beginning phase"
14	Difficulty (national policy)	Examples where national policy negatively impacted the ways communication or implementation of the partnership was evolving	
15	Difficulty (topic)	Examples where the topic of the research negatively impacted the smooth negotiation or implementation of the partnership	"I can only assume (teachers were sceptical because of my research topic), because they actually didn't even want to talk to me about this"
16	Difficulty (lack of experience)	Examples where lack of experience for establishing and maintaining partnership	"So it was my own experience, and my fear in the first two countries because I thought I had to do this, I have to have this data"

		was seen as a negative factor	
17	Difficulty (non-direct contact/contact through inspectorate)	Examples where the contact between the partners was made through an indirect way, involving other parties, particularly when this represented a difficulty for one of the partners	"Because I went through the school inspector, and I introduced myself and said I wanted this school. And because this was the way I done it she could not say no. So this was also not the elegant way of doing it. But it was efficient"
18	Ease factors (language, age)	Examples of factors or elements that made the partnership or connection easier	"Because she was quite young and she spoke good English" "And she was young and it was easy to talk with her" "I feel like if I choose foreign language teacher, they speak English, so I can understand and get better data on my study in depth." "And they are very happy and some of the teachers even said like it was a good way to explore in subject theories because policy maker can know how teachers are thinking about the assessment and how the teachers construct assessment and what are the difficulties and problems teachers face ,so, the teachers are welcoming me because I am exploring an issue which is very much connected to the classroom level, something like very crucial and very important. They think that the assessment is very important."
19	Trust between partners	Examples where trust was explicitly mentioned as beneficial factor to the partnership	"And the teacher that was there she said I'll put it in the teachers' room, and don't worry it will be there" "I am sure that I won't do like that because the school is really willing to get information and I will share my information. So, I'll send my publication to few teachers who are interested in. Even the

			principals they told me like to share my thesis."
20	Lack of trust	Examples where the partners did not trust each other or where trust was on the very low level	"And they could see I'm there always, but at the door to go into the classroom they would stop me. And they were like 'no'. And there was one teacher that was very strict about it"
21	Interest from the partners	Examples where interest into the objectives, activities or outcomes of the partnership were explicitly pointed out	"And I wrote an anecdote of how teacher screamed at the student. And this was a moment which was important for her, and she was laughing but she was also saying 'this is true, I did this'' "And through my reading, I also understood that assessment is an issue not only in Europe but globally how teacher handle difficulties in assessment that the environment is itself challenging. So, this area covers the third main theme of the EDiTE project within the emerging European context because it seems to be an issue not only in Europe but also in global. So, my research area is the focusing on three main focus of EDiTE project."
22	Lack of interest	Examples where the partners did not have enough interest for the objectives or activities incorporated in the partnership	"He didn't even care anymore, so he was like 'whatever' and I could see all his classes"
23	Challenge (principal)	Examples where there are challenges in partnership mainly coming from the principal	"But the director said to me 'don't do it anymore because she doesn't want it, and she only lets you in because she can't say no'. So then I don't go anymore"
24	Learning based on the experience	Examples where the interviewee talks about hers/his learning from the partnership experience	If I would do it again, I would do it differently, because in my last place in my last country of placement I did it differently"

160

			"if I get an opportunity to do my thesis again, in data collection, I would like to do a video analysis. A video recording of teachers' classroom and then I want to sit down with teachers and make the teachers reflect with their own lessons and at the same time, I will provide my own reflection, so reflective video analysis is something that I would like to do as an analysis."
			"Another thing is that I want to focus not only on the English lesson but also I would like to focus on the other subjects because subjective theories of all the other subjects are very important. And assessment is the topics not just with EFL teachers; it is also used in all the other subjects, so I can get a variety of perspective from all different subject teachers."
25	Solution for future	Examples of solutions based on the current or past collaboration experiences	"I would have a meeting with everyone, I mean with the teacher team and the principal and the pedagogues. And I would explain to them what I'm doing, what I'm taking notes about their school. Although I have written this all they kind of misread them. I would probably show them an example of my nores, maybe also read to them through the process while it takes place."
			"So, if it was able to establish a contact with the schools which gave more time to engage with us, we could do a lot more not only supporting the schools with their teachers but also with the student teachers for replacing the schools because it is mainly outside our use for this kind of partnership to place the student teachers. So, students are doing their initial teacher training which has to do during their last year of their master program, they have to do their internship in schools. So, in this way, student teachers could do more in a larger level not only with working only one teacher or two. At the same time, when we

			are doing our research with schools, most of the time we are doing with some of the teachers in the schools. Not doing research with the whole school. So, if the majority of the teachers were participating with us, we could share with them more."
26	Bond with the partners	Examples where the partnership created explicit bonds and connections	"But I had a special bond with this teacher, I can imagine that with other teachers it would not have been so easy" "Some schools even asked me "a talk on my country education system", so I also present for my education system. And some schools even asked me whether I could make a comparative presentation on Bhutan education system and Czech education system which I did as the request of the principals and the teachers."
27	Researcher's reflection	Examples of reflection done by the researcher	"And then in the third case I was a lot more experienced, and I was like 'this is what i'm doing'"
28	Research responsibility	Examples where the interviewees talk about the responsibilities of research and / or how it affects the partnership	"I think it's the task of the researcher to be also of use to the school and to the classroom and give as much feedback as possible (...) It is the responsibility" "So, you know, I am bridging the gap between the policy level (macro level) and the school." "yes, I can bridge between the policy maker and the teachers." "So, there must be alignment between our research interest and the problem or issue that the school is facing. If these two things are well aligned, they are open to engage with us. If it is not aligned, the schools are not well-opened, this is the cause where the poor partnership is happened. Then, you

162

			will find only one or two teachers who are interested in what you are doing, and they will open the doors to you but the schools as a whole will not learn as much from it."
29	Motives	Excerpts describing motivation for partnership from one or several parties involved	"Curiosity And maybe proving themselves" "The reason why I choose this topic (assessment) is because I am teacher educator myself and I have so many difficulties regarding to assess learning in order to support learning. And within my classroom, there are a lot of issues and I am really curious about how teachers in Czech Republic handle such kind of difficulties. So, this is my reason to choose the assessment as my research." "They are very happy and said that assessment is the critical issue and said "we are happy that you are conducting assessment in your research, so you can inform the policy maker what is happening in the classroom level." "The first reason is from the research perspective, make sure that we are doing research that is really relevant to the school context."
30	Critical results (negative feedback)	Examples where results of the research impacts the partnership in any possible way, particularly when the feedback is negative	Yes, scared. Because it's this thing you have a nice school and the nice director, and the teachers do a good job but then you have to bring them bad news. You have to tell them that things are not going well in here. And in the whole thing with the dissertation i was not able to think about how to frame it, how to make it not so… because the dissertation is something else that they can read. But if I go to the schools and present, and take the time of the teachers it must be something good"

| 31 | Benefits from the partnership | Examples where the partnership benefited one or more parties | "They wanted me to be there, they also offered me a teaching job. For them these weekly, and almost daily discussions on what's happening and how this looks to me were very important"

"I thought that this video analysis can really improve the assessment practices of teachers. And we can also understand what the teachers are really going through at the classroom level, understand their emotion, their frustration and their experiences. I think. If you sit down with them and really reflect on their lessons."

"Yes, the advantage is that I can give my ideas to the university. My ideas are practice-based and it is successful one and so, I can help them by showing how the idea is useful. That is important thing." |
| 32 | Sustainability / continuity | Examples in which interviewees talk about continuing partnership beyond the initial objectives or contract | "yes I stayed in touch with the teachers that I most talked with. And they're waiting for me to come and give this presentation to them"

" in one school, the principal told me that "many researchers come to our school and we don't hear anything when they go back. They said our finding will get back to you but they never coming back"

"At the same time, we also try at the beginning as much as possible to make the two way trip, mainly in the context where our researchers were doing in the fieldwork a longer period and give feedback to the schools they were researching, so, this is the informal way of sharing of the results they were developing but also the concrete action to support school transformation in the research topics like one of our researchers is doing a supervision model supporting the teachers…" |

164

			"More than hundred teachers can learn with our researcher in the workshop to talk about the issues of big diversity, language diversity and cultural diversity within the school clusters."
			"In EDiTE case, one of our researchers clearly did that. They can do more. Once they have finished their dissertation, they will share their finding and also the publication will be shared with schools. But this is not the most effective part. The most effective is that actually working in the schools with the school teachers."
			"Basically, they do not share with us. They observed and visited the schools. But they did some kind of presentation at ELTE and I can follow and observed her."
33	Future possible research/projects of the university school partnership (Or can be connected to existing Sustainability/continuity code)	Examples in which interviewees talk about future projects for university school partnership or future research plans in the field	"I want to explore on teacher professional development, and I think, University plays very important role in the professional development of teachers. So, I would like to do like, how teacher professional development is organized by the university, so, that way like, the university will go to the teachers and organize professional development workshops or training for the teachers and the teachers make use of that in the class and those kind of training will improve teaching and learning in the classroom level. Therefore, partnership is very important. And the university plays very important role in the moulding and shaping the teacher education."
			"But we also have continuous collaboration like some of the schools are more firmly established with us in participating in a research project. So, they are really engaged in this process for the last three years in this

			project. Other can be announced irregularly from the outside."
34	Role in EDiTE/Researcher's role	Examples in which interviewees explain their roles/occupation as a researcher or in a project itself	"In EDiTE, I was the national coordinator in Portugal. And I work as part of the supervising program with the other national coordinators and we also take charge of the quality assurance and responsibility in the program. All the evaluation regarding the different events throughout program, seminar that the researchers working several semesters to the supervision they were provided and to the coordination with the scientific advisory board that we selected and supported and also held the external evaluation because we were doing the internal evaluation."
35	Earlier SUP practices	Examples which interviewees mentioned of some earlier school-university partnership prior to EDiTE	"With these partner schools, we have many different kinds of events like the placement of student teachers or the development of research project, or professional development of in-service training, some of the schools are our partners through with other contacts, so in this case, I reach directly to the people I know there, for example, in one school, I connect directly with the director because we have already established the partnership for other things, so it is very easy to arrange a school visit with them."
36	Support for researchers	Examples which interviewees mentioned the way to support and help researchers	"I helped them mainly for the people that they would like to interview with. So, we mediated the process. So, if our researcher wants to interview with the principals, I arrange the meeting. Or in other cases, we first arrange the contact with the schools and then pass the information to the researchers, so, they can arrange themselves with the direct connection with the schools depending on their schedule what would be the best time for them. For more continuous case research like in one case of our researcher, we established a longer relationship with the schools. So, we first mediate the process and then the researchers are completely free to go to the schools as

			long as they wanted or they needed and they could arrange this relationship by themselves. So, we no longer have to stay to support for the whole time."
37	Challenges for partnership (or can connected to Difficulty (not 100%were on board, I also put this example there)	Examples which interviewees highlighted the challenges partnership	"But in most partnership, mainly the school teachers were not willing to provide their time because this required the extra time, of course. And unfortunately, they are giving their extra time, because this is an additional time from their everyday schedule."
38	Reflection on practice	Examples which interviewees reflect on putting theory into practice. How the programme worked in reality of the school-university partnership.	"And STs go there to practice. After working 2 or 3 years, I got the subject KI itself. I invite my STs to come to my schools to look at KIP program. In 2010, KIP was so successful and the spread of the program began. Now, we have 100 schools which used KIP developed by our school and by me. May be it is absolutely developed by us, but it is not a franchise. There are some rules which have to be followed. Otherwise, there won't be good collaboration. The basic idea of KIP is that there is a rank of children. There are the children who are at the bottom and they don't perform and under motivated. The question for us is how we can motivate them. The only solution is that task. The task should be multiple tasks and we always think of "How we can motivate them", "How we can raise under the eye of other children. So, we developed the questions. That is why the program was successful and now we have school network."
39	Specific collaboration university-school	Examples which interviewees give on how the collaboration worked	"You know that I know the Gabor. I was asked to step into the project. Judit also wrote a letter to step into the program. I met the researcher three or four years ago. First, Gabor came our school alone and stay one week in the school that he wanted to find out what is happening in the school. After he experienced and arrived my school, he sent the researcher to our school. So, the researchers come to our school and ask the teachers in my school about how we

			implement our program and how it works. When the researcher almost finishes her dissertation, we made connection and made clear the ideas and the questions."
40	Challenges for partnership	Examples where the partnership challenged one or more parties	"She visited more on lessons. She followed the teachers' classroom work. She asked the teachers and me how we start the program and what was the first step and whether everybody got into the program or not and what was most challenges point of the program. And she asked the questions like "if somebody doesn't want to do the program, what are the reasons". All of our teachers answered that 'the program is very good for the teacher burn out' because it is renewal all the time. It is an innovation from the teachers and the students."
41	Lack of methodological training	Examples where SFR researchers lost the opportunity to get the research methodological training from professors like ESR	"I sometimes heard from my colleagues, for example, that the other universities that they had really strong methodological courses, so, I feel like a lost opportunity for me not being able to observe/absorb all the methodological knowledge that the group of the deep professors have, [D1] because I was not going to. Well, I have one year courses in Portugal but it was a lost opportunity as I didn't get the same access to information as my colleagues."
42	Lack of enough resources (time)	Examples where the partnership is limited because of shortage of time available	"And the ESR was here more than two times here and we agreed that the time wasn't long enough to make more observation, more meeting and giving feedback to us." "It is difficult for us that we are here planning lesson in the school and we don't have extra time to give. So, we didn't have any kind of opportunity to do any kind of research. We couldn't say that we are very far from the university, we are not. But our everyday work is different."

168

APPENDICES TO PILLAR 4

Appendix 1. Questionnaire for school leadership

Part	Question	Objective
Introductory question	How did you get involved in the project? How many years has the program/project/system been working?	Introduction
Involvement	What has been your role in the program development?	Role during the planning phase
Learning	What have you learned in the program?	
Expectation vs Reality	What was your initial intention for your student teachers (practicing teachers) to learn through this practical teaching/project? What do you expect from the partners during the student teachers (practitioners) practical instruction of the program? What are the most significant changes since the program has been put in place? How the change has been perceived? Has the program evolved? Has this project meet the expectations? Yes, no and why?	Get to know the level of effectiveness of the program
Suggestion	What would you do differently if you have a chance to do this collaboration again?	Identify implementation mistakes
Collaboration	Could you please tell me something about the interaction with other stakeholders during the project?	

Appendix 2. Questionnaire for Teacher Trainers

Part	Question	Objective
Introductory question	How did you get involved in the project? How many years has the program/project/system been working?	Introduction
Involvement	What has been your role in the program development?	Role during the planning phase
Learning	What have you learned in the program?	
Expectation vs Reality	What was your initial intention for your student teachers (practicing teachers) to learn through this practical teaching/project? What do you expect from the partners during the student teachers (practitioners) practical instruction of the program? What are the most significant changes since the program has been put in place? How the change has been perceived? Has the program evolved? Has this project meet the expectations? Yes, no and why?	Get to know the level of effectiveness of the program
Suggestion	What would you do differently if you have a chance to do this collaboration again?	Identify implementation mistakes
Collaboration	Could you please tell me something about the interaction with other stakeholders during the project?	

Appendix 3. Questionnaire for Student Teachers / Teachers

Part	Question	Objective
1. Introductory questions Effectiveness	a. How many years has the program/project/system been working? b. What has been your role in the program development?	Introduction and get to know the level of involvement of teachers
2. Changes	What are the most significant changes in your institution since the program has been put in place? Has the program changed over time?	Get to know the level of effectiveness of the program
3.Involvement	What have you learned in the program? Are you currently using what you have learnt in your daily practice? What would you change in the program and its implementation?	Learning the perspective of the teachers involvement
Expectation Vs Reality	What was your initial expectation when you joined this program/project? What are the most significant changes in the program since it was put in place? Has this project meet the expectations? Yes, no and why?	Effectiveness Get to know the level of effectiveness of the program
Suggestion	What would you do differently if you have a chance to do this collaboration again?	

Appendix 4. Questionnaire for student teachers / teachers

1. Where you or a students'/teachers representative involved program development?
2. What are the most significant changes in your professional development since the program has been put in place?
3. Has the program been modified over time?
4. Do you feel that this project has covered your needs?
5. What have you learned in the project?
6. How useful do you consider this new knowledge?
7. Do you see yourself using the new knowledge or skills learnt in the project in your career?
8. What would you change in the project and its implementation?
9. What was your initial expectation when you joined this program/project?
10. Has this project meet the expectations? Yes, no and why?
11. Was there evaluation meeting in which you or a representative were present?
12. Have you observed any change in the project? If so, what are the most significant changes in the program since it was put in place?
13. What would you do differently if you have a chance to participate in this project again?
14. How the project should be modified if it were to run for a second time?

Appendix 5. Interview questions for project leadership university

1. How did you get involved in the project?
2. Was the project based on the university/government or school initiative?
3. For how long have you been working on the project?
4. What has been your role in the development and implementation of the project?
5. How has the interaction with the other stakeholders been during the development and implementation of the project?
6. What have you learned in the program that has been applicable to your everyday work?
7. What was your initial intention for your student teachers (practicing teachers) to learn through this practical teaching/project?
8. What were your expectations towards the practical instruction of the program?
9. What are the most significant changes in the school since the program has been put in place?
10. Did you attend evaluation meetings? / Where you invited to evaluation meetings? How often were those?
11. Has the project been modified or changed in any way? (e.g. based on the suggestions of the stakeholders) If so, how?
12. Has the project meet your expectations? Yes, no, why?
13. What would you do differently if you had the chance to do this collaboration again?

APPENDIX 6. CASE STUDY 1. MYANMAR (1)

Collaborative Partnership in Teacher Training for New Primary Education in Myanmar: A Case Study

Context

The education system in Myanmar has undergone four phases of change according to Latt (2019). These stages are: basic education before independence (1945-1948), basic education after independence (1948-1962), basic Education under military rule (1962-1988), and basic education on the wave of democratizations (1988-2015). The observable decline in Myanmar's quality of education has been attributed to the military regime's failure to invest in education (Hayden & Martin, 2013) but the country has since made improvements by investing necessary resources into the education system. As the adjustments have taken place, so has teacher training and education to ensure that teachers are more prepared and qualified to teach and for the necessary further professional development (Ulla, 2018).

One of the most significant moves to improve the quality of teachers was the upgrading of Teacher Training Colleges to Educational Colleges (ECs) all ECs and Universities of Education in 1998 alongside re-introduction of in-service training courses (Latt, 2019). As at 2015, the country had 22 Teacher Education Colleges and two Universities of Education. The ECs prepare teachers for the state basic education sector which comprises five years of primary education, four years of lower secondary and two years of upper secondary education. In addition, each EC has three kinds of teacher educators: academic teacher educators teach subject knowledge, Methodology teacher educators teach pedagogy and Co-curriculum teacher educators that teach agriculture, domestic science, music and fine arts among other courses (Borg, Clifford & Htut, 2018).

The Ministry of Education (MoE) is the main provider of education in Myanmar and is entrusted with the role of ensuring the children, adolescents and teenagers are taught by qualified teachers. However, Higgins and Paul (2019) asserts that the absence of a high-level coordinating mechanism for teacher education has resulted in responsibility for planning for teacher education becoming spread across several departments with the Department of Higher Education (DHE) being responsible for the EC, Department of Teachers Education and Training(DTET) conducting some in-service training, while other forms of in-service training are administered by the Department of Basic Education (DBE)and the Department of Educational Research, Planning and Training (DERPT) (Ministry of Education, 2015).

In Myanmar, Teacher education is divided into: pre-service teacher training programs and in-service teacher training programs. The pre-service teacher education consists of a two-year Diploma in Teacher Education (DTED) in the ECs, a five-year university degree (Bachelor of Education) offered at Universities of Education and a postgraduate course (Pre-Service Primary Teacher Training (PPTT) offered in the ECs. New four-year course in Education will be open in December 2019, those are degrees (BSc. And BAs. The Universities of Education offer the pre-service Bachelor of Education (BEd) course and other courses such as Post Graduate Diploma in Multimedia Arts, Post-Graduate Diploma in Teaching. As for in-service training, teachers can enroll in a one-year correspondence course for Primary and Lower Secondary teachers administered by the Education Colleges or a one-year correspondence course for Upper Secondary teachers administered by the Universities of Education (DFAT, 2017). Other in-service courses are such as the Education College-based Teacher Training

Course (conducted for the uncertified teachers) and the Township-based Primary School Teacher Training program, which is a one-year course in collaboration with Township Education Officers during weekends, and g school vacation (Ulla, 2018).

In an effort to combat the challenges hindering quality of teacher education in Myanmar, several measures have been taken. The United Nations Education Scientific and Cultural Organizations (UNESCO) has collaborated with Myanmar's MoE to launch a program, Strengthening Pre-Service Teacher Education in Myanmar(STEM) with the aim of developing teacher policy frameworks, redesigning of pre-service teacher education curriculum and programs, and the@ strengthening of Education College management (Borg, Clifford & Htut, 2018). Through STEM, current curriculum has been reviewed and a new two year diploma curriculum has been proposed, a four-year degree curriculum for basic and middle school teachers has been implemented and a new four-year course will start in December 2019, a teacher competency framework (Teacher Competency Standards Framework (TCSF)) has been drafted and an ICT subject has been developed which will be taught at all ECs. Stem Phase Two which began in 2017 and ends this year will see the expansion and progression of the outputs of STEM phase one, as it also works on another key output added in 2017 relating to human rights, equity and promotion of gender equality (DFAT, 2017).

Project Summary

The CREATE Project (The Project for Curriculum Reform at Primary Level of Basic Education in Myanmar) was launched in 2014 for developing new primary education textbooks, developing a Teacher's Guide, changing assessment methods and introducing new primary education to in-service and pre-service teachers. CREATE Project is jointly organized by the Ministry of Education in Myanmar and the Japan International Cooperation Agency. The project launched in May 2014 and will continue until March 2021.

Introduction

Recognizing that a quality basic education curriculum plays an important role in Myanmar's socio-economic and human resource development, the Ministry of Education (MOE), Myanmar, is trying to develop the basic education curriculum to improve core competencies, soft skills (including personal development and employability skills) and higher-order thinking skills. With this aim, a review of the basic education curriculum was launched as the part of Comprehensive Education Sector Review (CESR) research and Education Working Group policy review initiatives. These reviews recommended upgrading and improving the basic education curriculum to: (a) ensure horizontal and vertical content and competency linkages; (b) reduce overload and address gaps in content coverage; (c) ensure alignment between the new curriculum, pedagogy and learning assessment reforms; (d) align with the planned restructuring of school grades KG-12 (5-4-3); (e) meet the needs of a technology-based society facing rapid socio-economic development; and (f) improve quality and align with ASEAN regional and international standards (Ministry of Education, Myanmar, 2016).

According to the National Education Strategic Plan (NESP), the Basic Education Curriculum Framework covers: (a) basic principles; (b) objectives; (c) organisation of the curriculum with a focus on learning areas; (d) outlines of curriculum content and skills for each subject; (e) language of instruction; and (f) approaches to student assessment. To implement the Basic Education Curriculum Framework in line successfully with the National Curriculum Committee's policy, the following strategies are outlined;

Strategy 1: Redesign the basic education curriculum emphasising 21st century skills

Component 1: Preparation of the new curriculum design for basic education
Component 2: Development and finalisation of curriculum materials
Component 3: Development of curriculum for nationalities' languages

Strategy 2: Build the professional capacity of Curriculum Development Teams
Component 1: Teacher training on the new basic education curriculum
Component 2: Capacity development of Curriculum Development Teams
Component 3: Capacity development for curriculum development teams of nationalities'
    languages

Strategy 3: Implement the new curriculum through strengthened curriculum management,
    dissemination and monitoring and evaluation systems
Component 1: Strengthen the curriculum management system
Component 2: Implement the new basic education curriculum dissemination through different
    media
Component 3: Strengthen curriculum monitoring and evaluation systems (MOE, 2016)

As a pilot activity, the Ministry of Education (MOE) is implementing the Project for Curriculum Reform at Primary Level of Basic Education in Myanmar (CREATE) Project (2014-2021) in corporation with the Japan International Cooperation Agency (JICA).

CREATE supports the development of curriculum, textbooks and teachers' guides in all subjects (Myanmar language, English, mathematics, science, social studies, physical education, morality and civics, life skills, visual and performing arts) for all grades (one to five) at the primary level, developing a Teacher's Guide, changing assessment methods, and introducing new primary education to in-service and pre-service teachers.

Background of the Study

The overall goal is to implement new curriculum for primary education in Myanmar. The project purpose is to implement educational activities in accordance with the new curriculum of primary education at schools and teacher training universities. The project scope is nationwide.

The project aims to achieve the following outputs;

(1) development of a new curriculum framework
(2) development of a new textbook and teacher's guidebook
(3) development of a new assessment tool
(4) compliant with the policy on teacher training based on the new curriculum
(5) introduction of an activity for school teachers to understand the new curriculum

The project outlines several activities for each output (JICA, 2014).

Japan Side Output	Myanmar Side Output
➢ long-term/short-term expert, [Direct management] Basic education improvement (General management of program cooperation in this project and basic education field), ➢ [Business operation contract consultant] generalization, ➢ deputy summarization (curriculum development), ➢ subject education, ➢ textbook development, ➢ assessment support, ➢ deputy summarization (Teacher education), teacher training, etc., ➢ expenses for professional activities, C/P capacity building meeting expenses (excluding expenses for regular meetings, common to both components), ➢ translation expenses (excluding expenses for final correction), ➢ PC, Printers, other office equipment and training in Japan, training in third countries.	➢ placement of counterparts, ➢ decision-making on adoption of deliverables such as textbooks, teacher's manuals, ➢ editors in charge of textbooks, ➢ teachers, ➢ assessment tools, ➢ expenses on regular meetings (common to both components), for new curriculum verification, ➢ expenses for final proofreading on assignment of elementary school/ teacher training university, ➢ textbooks, instruction manuals for teachers, assessment tools, etc. (Myanmar language), ➢ new textbooks, ➢ instruction manuals for teachers, printing/ distribution of assessments etc., ➢ teacher training on new curriculum, expenses (through in-service teacher training), project office (including utility expenses, etc.) for printing, ➢ distributing final products, and ➢ delivering new curriculum to elementary school teachers

Challenges

In Myanmar, the major revision of the primary education curriculum was conducted in AY 1998-99 and its introduction began in AY 2000-01. For the most part, the current textbooks and teachers' manuals used in Myanmar were developed based on these reforms, except Life Skill.

In AY 2012-13, an agriculture subject was newly introduced. Teachers faced difficulties to complete all of the curriculum content in allocated time because of the over-loaded curriculum, and moreover, teachers could use knowledge-transmission method, teacher-centered teaching method as they have limited skills of student-centered teaching methods although child-centered approach trainings were offered nationwide since AY 2004-2005 with support from the Japan International Cooperation Agency (JICA) and UNICEF due to lack of teaching and learning materials, insufficient teachers, overcrowded classrooms, high teacher-student ratios, overloaded curriculums, rote memorization and exam systems (Sugiyama, 2013). This challenge is one of the reasons for reforming the basic education curriculum.

The textbook is black and white. The textbook organization is mainly information-based which challenges teachers to conduct creative teaching/ learning activities, which can encourage students' active participation and critical thinking, instead of activity-based structures. These challenges hinder the education system to prepare students facing the challenges of 21st century. In order to address these challenges, the government decides to review the current school system and to replace the current 5+4+2 system into 6+3+3 or 5+4+3 with the aim of transforming Myanmar's education to the international standard. Consequently, it is essential to revise the curriculum based on the new school system (Sugiyama, 2013).

For this transformational shift, all stakeholders are responsible. Among them, teachers and teacher educators are the key practitioners.

Methodology

In this study, document analysis was conducted, followed by participant interviews. In this case study, it will focus on the component 1 "Teacher training on the new basic education curriculum" of the strategy 2 "Build the professional capacity of Curriculum Development Teams" and investigate the effectiveness of school university partnership in teacher training for New Primary Education in Myanmar. Two participants were interviewed for this study. The first one is a teacher educator from an education college who participated as a trainee at central level of the training project and as a trainer at the state/regional level. The second interviewee is a school teacher who received three-months of teacher training and became a primary teacher due to shortage of qualified teachers, with the aim of covering the trainers and trainees at the central, state/region, township level and school level. Additional data included the exploration of policy and project documents using the data analysis approach.

Training Process of the Project

New Grade 1 curriculum and its textbooks developed by the Ministry of Education (MOE) with support of Japan International Cooperation Agency (JICA) was introduced in AY 2016-2017. Approximately 1.3 million new grade 1 primary school students across the country have the opportunity to learn with the new textbooks. Changes in the curriculum for Standard 2 students followed in 2018-2019, will implement Grade 3 curriculum in 2019-2020 year.

Under CREATE project, JICA has been supporting MOE in introduction of the new curriculum, particularly the development of new textbooks since May 2014. The Curriculum development teams, comprising of around 40 Japanese and overseas curriculum experts as well as over 60 Myanmar academics, developed the textbooks and teacher's guides. The National Curriculum Committee reviewed and approved the textbooks, under the National Education Policy Commission. The new primary education curriculum is comprised of 9 subjects (10 learning areas) namely Myanmar, English, Mathematics, Science, Social Studies, Morality and Civics, Life Skills, Physical Education, and Arts (Performing Arts and Visual Arts); in addition to Local Curriculum, which will be developed by each State and Regional Government.

In preparation of the introduction of the new curriculum, JICA technically supported a series of training, MOE mainly took the responsibility for conducting the training. The initial training was delivered in January 2017 with the Supervisor Training for education officers from townships, districts, and states/regions, and the ministerial officials from the concerned departments at the Central level, followed with the nation-wide In-service Teacher Training (INSET) to introduce the new curriculum to in-service teachers (23 January - 26 May) in a 4-layer-cascade approach: central training, state/region level training, district/township level training, and school family level training. Through INSET, all primary teachers who teach G1 from all schools, including monastic schools, private schools, and other schools that use the

government curriculum have been trained on the new curriculum and how to facilitate students' learning with the new curriculum.

Pre-service training (PRESET) for lecturers and students at the Education Colleges to learn about the new curriculum is also planned and the central training started on 29 May 2017 (JICA, 2016).

Findings

Impact of Collaborative Partnership on Teacher Learning in Training Project

Sub-case 1

One teacher educator from one education college commented on the effectiveness of the project. She is an assistant lecturer from Department of Educational Theory of one Education College. In implementing the new primary education curriculum, she played the role of trainee at the central training and delivered the training at the state/region level training as trainer. She said that she received five day-training; two days for general contents of the new curriculum and preparation of trainers for the state/region level and three days for the content structure of each particular subject of the curriculum and how to implement it in the classroom. Generally, the training was well prepared. During this training, she got good support from the central trainers and found that the Japanese experts observed the central training session and gave constructive feedback, comments and suggestions during and after the central trainers conducted the training.

She thought that the weak point of the training was the fixed plan. During the training, the central trainers used a ready-made training plan. The trainee followed their instructions and tried to deliver a similar training plan to the township/district level trainees. She worried that her creative training plan would deviate from the original objectives although the central trainers encouraged the trainees to create the plan to meet the objectives of the content. In the preparatory session, it took a long time to train on the fixed plan. From the perspective of teacher learning, the collaborative partnership emphasizes compliance more than creativity in teachers. As for her, the central level training is not satisfactory for training state/division level trainee.

At the state/division level training, she played the trainer role. Her expectation for her trainees was to use the training plan developed by central training. The trainees would become the township/district level trainers. In delivering the training, she had limited time, and in some cases, equipment failure. On the other hand, she found most trainees enthusiastic to learn new things about new curriculum. In assessment system, some reforms are made. Previously, It focused only on summative assessment. In new assessment system, it emphasizes both on formative and summative assessment. Compared with the former assessment system, assessment techniques such as observation, questioning, student learning journal, open-ended questions are used rather than paper and pencil tests and it assesses 21st century skills and soft skills such as 5 C's (Collaboration, Communication, Critical thinking and Problem solving, Creativity and Innovation and Citizenship). The teacher educator likes this kind of assessment system and believes that it is more effective than the former one. However, she said that training could not significantly improve teacher educators' assessment skills because of the training time limit and because she may already possess this kinds of assessment skills as a teacher educator.

Sub-case 2

One primary school teacher was interviewed about the impact of the collaborative partnership of the training project. She is a teacher with only three-months teacher training and became a

primary teacher due to shortage of qualified teachers. She received the township-level training for primary education curriculum from the township level trainers and implemented it at the classroom level. She said that through the township level training, her learning significantly improved. She believed that her teaching skills for enhancing 21st century skills of students couldn't have been improved without this training support, the help of new textbooks, teachers' guides and teaching aids. The township education officers and headmasters/headmistress gave their support. For example, teaching aids and real classroom settings for practical teaching of training were supported. Moreover, they visited and observed the training sites and supported as needed. She said that the trainer support was satisfactory for some subjects such as Myanmar language and English language but was unsatisfactory for some subjects such as Arts (Visual and Performing Arts). She suggested that it would be better if the trainers were skillful in the art fields because some teacher trainers had no confidence to demonstrate some activities such as playing musical instruments and dancing. Moreover, the weather conditions during the training period affected the impact of the training. The training was delivered in summer vacation. The extreme temperature hindered teachers' learning and enthusiasm.

In implementing the new curriculum in the real classroom, the most significant change occurred in teaching/learning methods. Previously, she used the lecture method most of the time. After the training, she could use the innovative teaching methods that encourage students' active participation and critical thinking. Specifically, the traditional classroom setting does not encourage discussion among teachers and students. Instead, a double U classroom setting is used which encourages discussion in the classroom. Although the teaching aids were supported adequately during the training period, there were limited teaching aids in the real classroom. This could increase creativity because she needed to develop the teaching aids by using the available materials. Regarding with the assessment system, she was given sample assessment guidelines during training and implementing at the classroom level. At the beginning, she is not skillful in using this kind of assessment because it requires more teacher effort and it is not easy to assess and observe all students at the same time in over-crowded classrooms. In Myanmar, the normal classroom size is about 50 students by one teacher. However, she hope that she would used to this kind of assessment and be skillful after using it for long time.

Discussion

In the first case of central level training, it was found that the collaborative partnership could not effectively improve the creativity in trainees' learning. The reason for that is that during the training, the trainers just focused on the transmission of the fixed training plan and did not encourage the trainees to develop their own innovative training plan. Moreover, the trainees at the central level are the teacher trainers from the education colleges and until now, the education college curriculum hasn't been reformed. It can be said that the school teachers, the practitioners, improve their learning through the partnership support in the training. It may be because the school level teachers needed to implement the new curriculum in the real classroom, applying the experiences obtained from the training. Moreover, we can see a contradicting result from two cases. One interesting question is arising. If the trainers didn't significantly make difference in learning, then how could it make differences/improvement in school teachers' learning (at down level)? In my opinion, the reason could be twofold. The first one is the sample size. For example, an interview where only two cases were considered (one teacher educator and one school teacher). The second is that the teacher educators already have knowledge and experience with innovative pedagogy and the training plan is fixed. So, any special changes could not occur in teacher educator's learning. For a school teacher, without receiving adequate teacher training, she became a primary school teacher as needed. Moreover, the training could not affect immediately school teacher's

assessment skills but in long term, it could affect it. Therefore, the training project (CREATE) could significantly affect school teachers' learning.

Conclusion

Generally speaking, the CREATE project manifests the effectiveness of teacher learning and collaboration of the partnership, with significant improvement in the learning of school-level teachers although there is no significant improvement in teacher trainers. It can be seen that the level of involvement is high during the development and implementation of the project. To some extent, the stakeholders' (e.g. teacher trainers and school teachers) expectations can be met. In this study, there are many limitations. If it can get the views and perspectives of each stakeholder involved in each Project Implementing Level, the study will be stronger.

References

Japan International Cooperation Agency (2016). Curriculum Reform at Primary Level of Basic Education in Myanmar CREATE Project. Retrieved from https://www.jica.go.jp/project/myanmar/014/outline/index.html

Ministry of Education (2016). *National Education Strategic Plan*. Myanmar.

Sugiyama, R. (2013). *National Curriculum Review in Myanmar: Technical Input for CESR Working Group*, JICA.

APPENDIX 7. CASE STUDY 2 MYANMAR (2)

Case Study Title: School–University Partnership in Initial Teacher Training: *A glance at the current collaboration between Teacher Training Universities and Schools, Myanmar Case Study*

This case study examines the nature of collaboration between schools and universities under the Ministry of Education in Myanmar, within the specific context of student teacher training. The collaboration between teacher training universities and schools are considered as the scope of this case study. There are two teacher training universities in Myanmar and both of them have been investigated. This case study aims to examine the collaboration between teacher training universities and schools which provide training for student teachers, in the specific context of practical teaching within the four-year university undergraduate program. Every year, these universities allocate student teachers to schools through a collaboration between university teacher educators, school principals and school teachers.

1. Introduction

Every country in the world is trying to upgrade its education system. To do this, the first priority is often the teacher education system and program. To improve the quality of the teacher education system, a school-university partnership is one of the main factors considered. In the context of school-university collaboration, knowledge sharing and exchange are essential elements to carry out successful learning across boundaries.

School-university partnerships have been developed and implemented successfully in western countries like the United States, the United Kingdom and Australia (Tsui, Edwards, Lopez-Real, & Kwan, 2009). In these countries, school-university collaboration is extraordinarily successful. For example, in the United States, professional development schools (PDS) are famous for training initial teachers and have been successful. Based on these countries and their successes, many countries are increasingly focusing on the school-university partnership in teacher training and professional development. In Asia, Singapore is the leading nation for initial teacher training and collaboration between the Ministry of Education, initial teacher training institutions and schools. Such collaborations are popular in many other Asian countries as well.

In Singapore, the National Institute of Education (NIE) used an enhanced partnership model to evaluate and foster teacher education and school-teacher partnerships. Since teacher education is important for national education, school-university partnerships are essential for qualified education. Therefore, different countries have different approaches to teacher education and the partnership model. (National Institute of Education)

Myanmar, which experienced a long-term decline and stood at the bottom among ASEAN countries in education (Borg, Clifford, & Htut, 2018), is now trying to update its education system through various reforms and collaborations between national and international organizations. One of the most notable improvements can be found in the initial teacher training program. In Myanmar, initial teacher training mainly focused on theoretical and academic knowledge through lectures given by the university professors (Borg et al., 2018).

During the 2000s, teacher training universities collaborated more and more with various organizations to cultivate the qualified teachers of the future. The collaboration between

universities and schools for initial teacher training and professional development are now being considered by the government. The "tripartite model" for collaboration between universities, government and schools has been proposed by the nation (Unicef, 2013). Gradually, the partnership between universities and schools is becoming an important factor to improving initial teacher training and also for the professional development of teachers in Myanmar. Therefore, in this initial stage of implementation of the formal school-university partnership in teacher education, the investigation into the current practices of school-university collaboration in teacher education in Myanmar is essential to support the incoming practices and establishment of the proposed model by the government.

2. Overview of the current collaboration between Teacher Training Universities and Schools in Myanmar

The vision of the Ministry of Education is "to create an education system that will generate a learning society capable of facing the challenges of the Knowledge Age" (Ministry of Education, Myanmar). In order to achieve and implement this vision, reforming and investigating the education system is considered an essential component to improving teaching and learning throughout the whole country. Since then, two teacher training universities have become the most important starting point as the source of education.

2.1 Specific focus in this case study: Two Teacher Training Universities

Throughout the country, two teacher training universities are responsible for cultivating the student teachers who will become senior teachers after they finish their five-year undergraduate studies. The two teacher training universities are different from the numerous teacher training colleges in the country because they offer a two-year program as opposed to a five-year program at the university. At the universities, only top students who pass the matriculation exam with high marks are accepted.

The two teacher training universities are Yangon University of Education and Sagaing University of Education. Yangon University of Education is responsible for the lower part of Myanmar and Sagaing for the upper part. Both provide the necessary qualifications for prospective student teachers. The teacher training universities are organized with three education departments and academic departments. The educational departments include an Educational Theory department, an Educational Psychology department and a Methodology department. The academic departments deliver different science subjects and art subjects.

Yangon University of Education: Brief Introduction

The vision of the University is "To train teachers, researchers and educationists capable of producing lifelong learners who can generate able citizens to create a learning society" (Yangon University of Education). The mission of the university is "To bring up innovative academicians who can render excellent and dynamic service to society with upmost sincerity and loyalty. (IDEALS)" (Yangon University of Education).

Yangon University of Education uses just one practicing school.

"The Practicing School which serves as a laboratory school of YUOE began with students in 1931. This school has become one of the premier schools in Myanmar. The practicing School has over the years grown steadily and now has an enrollment of over 6700 students from Kindergarten to Standard Ten." (Yangon University of Education)

Sagaing University of Education: Brief Introduction

The vision of Sagaing University of Education is "To become a source center for upbringing the qualified educationists" (Sagaing University of Education). The mission of the University is "To become the high standard qualified teacher training institution and to cultivate the human resources who support the education of the country" (Sagaing University of Education).

Like the Yangon University of Education, Sagaing University of Education uses just one practicing school. It's called "Shwe Minn Wun" Practicing High School. (Sagaing University of Education)

2.2 Practical Teaching or Block Teaching

During five years of study at university, student teachers have practical teaching during their third and fourth years. In their practical teaching, university student teachers only teach secondary students. After their third year at the university, during the summer holidays, student teachers do their practical teaching at their selective schools. Student teachers are free to choose any school that they want but most choose to do their practical teaching at a school in their home towns. This third-year practicum teaching period is only about one month, but if the schools want to accept student teachers for more than one month, a two-month practicum is also possible.

Unlike the third-year practicum, student teachers are assigned to schools for practice teaching by the Department of Methodology based on their respective subjects. A group of student teachers (six to ten) are assigned to a school according to the academic subjects taken as their major subjects at university.

3. Methodology

This study aims to study the collaboration culture and system between the universities of education and basic schools from the perspective of training pre-service teachers. This study uses a descriptive case study approach. The data was collected using semi-structured interviews. In this study, one teacher educator from methodology department and two fifth year students were selected. The reason for the interviewee selection is their block teaching experience. The data collected was transcribed verbatim and analyzed using an inductive method.

4. Objectives of conducting the Myanmar Case Study

The major aim of this case study is to examine the current collaboration culture and system of the two teacher training universities and schools for the purpose of cultivating qualified prospective teachers. The specific objectives of this case study are:

1. To find out the benefits and challenges in the current partnership between universities and schools
2. To investigate how the universities select specific schools for practical teaching
3. To study the procedures for placing student teachers in practical schools (which methods or consideration they used to place the student teachers, etc)
4. To examine the feedback system given to student teachers after they finish their practical training

According to the objectives, the case study will be conducted by looking into the system of two training universities in Myanmar.

5. Benefits and Challenges

This section will present the description of current collaboration between universities and schools from the point of view of teacher educators and student teachers. Teacher educators from Yangon University of Education and Sagaing University of Education will be presented in this section.

5.1. Placing of student teachers to schools

According to informal interviews with two educators from the universities, the two teacher educators from the Methodology Department (where the allocation of student teachers is mainly carried out) claimed that student teachers are placed to the schools in accordance with their respective subjects that are taken as their majors at university. According to the teacher educators, the relevance between the major subject and the subject responsible to teach at the school during the practicum is the first priority for the university teachers.

> *"We normally assign student teachers according to their major subjects. It is the first thing that we consider as the first priority. There must be harmony between what student teachers take as a major subject to teach and what subject they are assigned to teach at schools."(Teacher educator 1)*

5.2. Selecting of schools

Schools where the student teachers are placed to teach are selected based on different criteria.

> *"Transportation is the first consideration point to think in selecting of schools. We only assigned student teachers to the schools where transportation is convenient to get access for all student teachers."(Teacher educator 1)*

> *"And we also see the previous record or review of schools from student teachers last academic year. If the student teachers are complained about something terrible, we avoid these schools to place student teachers for their practical teaching".(Teacher educator 2)*

Basic education high schools which are easy to get to are chosen by the university as the partner schools for practical teaching.

5.3. Feedback and evaluation

As soon as the student teachers are placed in the schools, an evaluation sheet is sent to the schools by the university to evaluate student teachers during their practical teaching. The school teachers observe the student teachers and evaluate according to this sheet. These results are sent directly to the university and the student teachers are not allowed to see them. In the case of feedback from the university, student teachers described it this way:

> *"Normally, the university doesn't support formal feedback for our practice teaching. But some teachers informally ask about the experiences of practice teaching during the lecture. The evaluation done by the school teachers is directly sent to the university. We are not allowed to see it. And we never know the results". (Student teacher 1)*

> *"The evaluation is not clear enough. We didn't receive feedback and we didn't know the evaluation made by school teachers who observed our classrooms." (Student teacher 2)*

5.4. Closeness between partners

When student teachers are doing their practical teaching at the schools, the university educators from all departments of the university go to schools to investigate the student teachers' practical teaching. But according to the university educators, they usually go to the schools and talk with the principals. Few university educators observe the student teachers directly and they rarely talk or discuss with school teachers about student teachers.

"I went to the school and talked with the principal about how the school is regulating and working. But I never talk with the school teachers and never observe student teachers' classroom." (Teacher Educator 1)

"Usually, when I went to the schools where the student teachers are assigned for their practical teaching, I first talk with the principal. Then, I sometimes observe the student teachers' teaching. But I just only observe a few minutes. I couldn't observe every student teachers 'classroom. Normally there are eight to ten student teachers are assigned to the schools and I couldn't observe all of them, because I went there at most two times during their two weeks of practical teaching." (Teacher Educator 3)

According to the interviews, some teacher educators didn't even go to the schools they were responsible to observe – they simply spoke with the principal. Most had no experience of talking and discussing with school teachers who observe the student teachers' classroom.

6. Conclusion.

Compared to the past, Myanmar Teacher Training Universities are collaborating more and more with organizations to produce qualified student teachers. Based on the findings of the case study, collaborations between universities and schools are emerging. There is an urgent need to build trust and closeness between partners if successful and effective initial teacher training is expected in the future.

References

Borg, S., Clifford, I., & Htut, K. P. (2018). Having an EfECT: Professional development for teacher educators in Myanmar. *Teaching and Teacher Education*, *72*, 75–86. https://doi.org/10.1016/j.tate.2018.02.010

Ministry of Education, Myanmar: Vision of Education System
     http://www.cesrmm.org/index.php/en/leadership1/ministryofeducation

National Institute of Education. https://www.nie.edu.sg/teacher-education/practicum

Sagaing University of Education. http://suoe.moe.edu.mm/?page_id=1629

Tsui, A., Edwards, G., Lopez-Real, F. J., & Kwan, T. (2009). *Learning in school-university partnership: sociocultural perspectives*. Retrieved from http://public.eblib.com/choice/publicfullrecord.aspx?p=359060

Unicef (2013). Development of a Teacher Education Strategy Framework Linked to Pre- and In-Service Teacher Training in Myanmar
          Yangon University of Education. http://www.yuoe.edu.mm/

Professional Development in Spain: Centers for Continuous Education

The Spanish context

The Spanish government operates a decentralized education system in which the *Universities of Education* conduct the initial certification for the teachers. The Spanish education system is managed by 19 Departments of Education, where 17 departments correspond to the regional governments and the rest to the two autonomous cities of the country. The regulation and coordination is done by the Ministry of Education, Culture and Sport (MECD) through PL 2/2006. Within the ministry is the "Instituto Superior de Formación del Profesorado" (Teacher Training Institute) founded in 2000 in order to foster teacher training and guarantee good pre-service teacher training as well as proper in-service teacher training adapted to the educational objectives of the European Union (EU). The regional governments the creation of training centers and institutes, and schedule and plan the activities necessary for continuous teacher training while ensuring diversified and free training offer through the promotion of continuous teacher training programs (PAFP).

In Spain, the education levels are divided into four stages namely: Pre-primary education (0-6 years old), primary education (6-12 years old), lower compulsory secondary education (12-16 years old) and post compulsory secondary education. The current acts regulating them include 2013 Act on the Improvement of the Quality of Education (LOMCE) and the 2001 Act on Universities (LOU) respectively (Eurydice, 2019). While in the past teachers only needed academic qualifications to teach, the change in the General Education Law in 1970 made it mandatory that additional training be offered. Hence, the teachers in Spain undergo both pre-service (initial training) and in-service training involve academic, pedagogical and didactic training for them to be allowed to teach in their respective institutions.

The initial education required differs depending on the different education levels where teachers teach. National education legislation sets the initial teacher training requirements for each stage. Prospective teachers have to complete a four-year undergraduate program for initial certification in three majors: kindergarten and elementary education at graduate level, and secondary education at master level (Chiner & Cardona, 2013). For one to teach in pre-primary and primary education, one must have a Bachelor's degree in School Teaching of Pre-Primary and Primary Education while teaching in secondary school requires a bachelor's degree, be an engineer or an architect, or hold an equivalent graduate degree, as well as having postgraduate pedagogical and didactic training. Furthermore, in order to qualify for teaching in technical/vocational Training centers, one ought to have a university degree, be an engineer or an architect, or hold an equivalent graduate degree, as well as having postgraduate pedagogical and didactic training (Pusztai & Engler, 2015). The Ministry of Education and Vocational Training (MEFP) sets the requirements for verifying the official university degrees of Bachelor and Master that enable the exercise of teaching in non-university education, vocational training and specialized education.

According to Livingston (2016), the initial teacher training that takes place in universities is inadequate to address the complexity of the teaching/learning process in the classroom the demands of a changing society. Today, Spanish educational legislation provides

for the development of continual training activities for teachers through the Annual Plan for Teacher Training (PAFP) set out by each regional government. The state regulation of Continuous training for teachers is contained in the Organic Law 2/2006 of Education. The training is done in Teacher Centers found in each regional government alongside other institutions such as university departments, Institutes of education, professional associations, unions, educational reform movements, and teacher training centers (Pusztai & Engler, 2015). In addition, post graduate training is also offered in the education universities and it is divided into Masters and PhD levels according to the Organic Law 4/2007. Most of the postgraduate courses focus on diversity, ethnic minorities, cultural pluralism and teaching in a multicultural environment (Eurydice, 2019).

Case summary

The present case study addresses the continuing professional development of teachers in Spain through the *Centers for Continuing Education* (CCE). A brief theoretical analysis is carried out in which the CCEs are conceptualized, their historical evolution is mentioned as well as their current situation. Furthermore, the training in these CCEs is approached from the perspective of three teachers who currently attend one of these centers. This study focused on a training project carried out in an educational center for the implementation of *Key Competencies and Innovative Methodologies Course* in the wake of an evaluation system reform.

Introduction

In general, education systems are constantly changing and making improvements in an effort to adapt to student demographics and the complex job skills required in competency demands of the future. Technological evolution has resulted in the development of new educational technologies that can be utilized in the process of learning and teaching as well as tools for knowledge sharing. As such, the teachers have to undergo continuous professional development during their careers to ensure that they stay up to date with current topics as well as new pedagogy methodologies (Kennedy, 2016). According to Eraut (2010), professional development may be approached through various methods, such as: formal vocational education (post-secondary or poly-technical training), pre-service and in-service professional development programs.

Consequently, most autonomous communities require that teachers take continuing education classes in Centers for Continuing Education (CCE) every year in order to maintain professional competence and their teacher certification in their respective states. These centers focus on the pedagogical renewal of teachers that have a stable position within the system of civil servants at the state level. Working on lifelong is considered important for "economic advancement, personal development and social inclusiveness" (Akçay & Yıldırım, p.1757). In the Spanish education system, only those who have obtained a position through the public system ladder will have free access to such education.

Objectives

This study aims to do an analysis of a project in Spain's continuing education system that targets teachers with access to the CCE centers as a way to update their pedagogical knowledge and be at the forefront of the latest innovations in the educational field. This research approached the analysis from the perspective of three teachers with different levels of experience. Thus, the study aims to uncover how the participation in the training process in the CCE has developed the participant's professionalism.

Methodology

A qualitative approach was used within this study. The information has been collected through semi-structured interviews through the exchange of voice messages.

The information was collected during June 2019 after the completion of the course on key competencies and innovative methodologies. The course was taught between January and May, during one session of 3 and a half hours per week, using the resources available in the classroom –digital whiteboard and furniture– the methodology consisted on master classes and was combined with modern techniques such as gamification and cooperative work.

The structure of the course was proposed as a collaborative work among the teacher trainers of the center whose function was to develop a project based on the subject of social and natural sciences from which the contents of the other subjects, language, mathematics, etc., would be introduced. Furthermore, the teachers proposed the creation of models within the typical classroom environment with the students. During the preparation of the models the attendees studied concepts related to the natural and social environment that surrounds them, mathematical and language activities, favoring oral expression and social relations between the students.

Participants

The interviewees attended a course based on the introduction of key competencies and innovative methodologies oriented to the evaluation through competences, with the objective of implementing this system in their entire schools. According to our collaborators, their participation in this project corresponds to two main motivations: the first is to improve their academic training, which will have a positive impact on their educational practice; and the second is to provide their collaboration so that the course can be taught at the center, thus supporting the management team with their innovation proposals. As an example, on of the interviewees was assigned to a working group which focused on the first level of primary school (6-7 years old).

Background

Teachers continuous education in Spain

Continuing education is not a new area of study in the Spanish education system and to better understand it, one should take into account the Spanish socio-political context in the years preceding the establishment of teacher training centers. The creation and operation of the Teachers Centers was regulated through the Royal Decree 2112/1984 in 1984 as a repeal of the Order of February 28, 1975, which regulates the National Plan for the Improvement of Teachers and the Order of August 3, 1983, which regulates the creation of Study and Exchange Circles for Educational Renovation (SECER). The socio-political context in 1983 started a liberalization era after a long period of dictatorship (1939-1975) and the subsequent renovations were not only social, cultural and political but also occurred at education level.

The revolution led to the decentralization of the Spanish educational model, for example, each autonomous community has the authority to legislate in educational matters. Therefore, even though the *Teacher Training Centers* started as a state-level legislation institutions, each community elaborated its regulations from different perspectives. This study took place in the Autonomous Community of Andalusia which is divided into Eastern Andalusia and Western Andalusia. This study focused on Eastern Andalusia, specifically in the province of Almeria. Eastern Andalusia has three teacher training centers spread across different geographical locations in the province and this study gathers data from all of them.

The Teachers Centers were created by the Andalusian Board through the Decree 16/1986, of February 5, on the creation and operation of the Teachers Centers. Each educational center (schools and institutes) is associated with a specific CCE, although that does not mean that teachers cannot go to other CCEs if they are interested in a course that is not taught in their own CCE. These centers have become indispensable in the theoretical and practical training of current Spanish teachers. The number and nature of courses changes according to the demands and needs of the teachers and the offer varies from neuroeducation courses to new teaching/learning methodologies using virtual management platforms for teaching.

Challenges in CCE Centers

Since the entry into force of Organic Law 8/2013, of December 9 for the improvement of educational quality (OLIEQ), and more specifically with Order ECD/65/2015 of January 21, which describes the relationships of the competences, the contents and the evaluation criteria of the primary education, the compulsory secondary education and the baccalaureate, the Spanish educational system must adapt to the guidelines of the European Union regarding Key Competences. That is why most of the current training proposals of the CCE and other organizations (unions, private training centers, and university conferences) are familiar to the adaptation to the key competences model.

Prior to the implementation of these guidelines, the educational centers worked for minimum objectives to be achieved by the students and the evaluation criteria for each of the subjects studied. The development of the training courses in the school in question is aimed at updating the evaluation system of the different subjects and that all the teachers of the center adopt the evaluation system for key competences so that the educational center is a unit and there is continuity in the different courses, levels, and stages.

This change is a big challenge for all teachers who have been teaching for decades, because it implies updating their teaching and evaluation methodology and not everyone is willing to change; such reticence is making it difficult to implement this model in practice. On the other hand, the teaching universities still have to improve and adapt the syllabuses so that new teachers are able to apply said decree to daily practice.

That is why this type of course offers a theoretical and practical perspective of the competence model. Thus, experts in the field move to the centers or to the different schools that request it to encourage teacher training in competences and its implementation, given its benefits and the need to equate our education system to the European level. This is a challenge for the Spanish education system, which will need a generational change to finish with a complete adaptation to the model by key competences.

It is also important to highlight that the motivation of active teachers is key to the development of this type of projects, although it is true that there is a system of economic incentives for teachers to attend these courses given after the sexennium[1] evaluation.

Unfortunately, this type of project, in most cases –as in the case at hand– is not accepted by the entire educational community of a center, so it is difficult to adapt it to the center-level; although generally benefits at the classroom level are reported. Besides, given the interim situation of teachers, the task of implementing this type of activities to evaluate long-term results can be problematic.

The CCE Project

The teacher training centers investigated in the current study offer several courses as well as diverse possibilities to the participating teachers. These courses are proposed by active teachers, who bring innovative teaching practices to the CCE; said practices are evaluated and, if deemed appropriate, the course will be carried out. When the course is proposed to be carried out, the

directors of each school or institute are notified, who are in charge of transmitting the information via email to the rest of teachers who work in the facilities. Given the strategic position of the CCEs, each educational center in the province is associated with a specific CCE, although that does not prevent that, if a CCE develops a course of interest for teachers whose center is associated with a different CCE, these can attend to that course.

It is important to highlight that each teacher has a limited number of free hours provided annually towards professional development courses. The teacher who teaches any course in the CCE receives financial compensation, regardless of his/her salary as a professor or teacher, for the number of hours taught. The training is totally free for the teacher who receives it; in addition, travel expenses are paid to the teacher by the administration. However, if 50% of the staff of an educational center is enrolled in the same center, it's the CCE professional who moves to the educational center to teach. This means a lower expense for the administration, because it would only pay for one trip, as well as logistic comfort for teachers who receive training, since they do not have to travel (Yan, 2011).

Findings and discussion

The participants undertook a course on the topic of *key competencies and innovative methodologies* with the objective of implementing it in all courses and subjects of their schools.

The course implementation gave positive results. According to Musset (2010), the benefit of this type of courses lies mainly in the theoretical and practical training of teachers attending them; and, indirectly, to the center where these teachers carry out their professional performance. One interviewee says "*the course has been useful to learn new techniques and methodologies to apply in my classroom*". One of the reasons she attributes to this success is that the teacher who has carried it out (director of another educational center where this methodology is already being applied) had a very broad knowledge in the subject.

When teachers who are truly motivated to improve their practice and, participate in school-university partnership initiatives, the entire educational system benefits directly and indirectly. It should be added that the professionals who have taken this course, are on occasion in charge of university students in internships; so, their work and professional performance could also serve as a knowledge base for future teachers.

Based on the perspective of one of our interviewees, this course has been *a dose of reality for the new management team*, eager to do their job. From what happened with the course taught in the 2018/2019 school year, they have a new perspective on the status of teachers' motivation in the school.

Nevertheless, the CCE project was executed not without challenges and shortcomings. One of the challenges was on the attendance by the teachers. While it is true that teachers have a long-term salary impact for their attendance at this type of course, which generally encourages their participation, there is an obvious lack of motivation and involvement by many teachers who had left the course early and often, as the interviewee mentioned. Although more than 50% of the workforce of the school is enrolled in the course (an essential requirement to be able to perform this activity in the educational center) the attendance dropped as the course has progressed. Some of the reasons cited include lack of interest; either because they already had the necessary hours for the sexennium[20] or because their retirement was approaching. In addition, the specific period of study coincided with the exam scheduled to take place between June and July to which several of the teachers of the center will be present, so they have also stopped attending as the exam date approached.

Also, one of the objectives was to carry out the implementation of the new system in the subsequent year 2019/2020. This was attributed to the finding that the current management

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[20] *Six-year period. In Spain teachers are evaluated every three or six years*

team is just one year old and that not all teachers have decided to take the course. However, there is a part of the teaching staff who will remain in the center next year, who already knows that this type of practice and can begin the application in some classrooms until the total involvement of the entire educational community is achieved.

Other inadequacies identified by the participants of the study include hardships in applying the methodology. One of the interviewees noted that it has not been as innovative as it could be for a person with a more traditional teaching methodology background. Besides, she considers that this course cannot be applied to her teaching activity, since as an audition and language teacher she works with students with difficulties in speech and oral expression, individually, with very specific activities and very specific methodology. Therefore, although she affirms that she has obtained some improvement in regard to her daily teaching practice, this cannot be compared to the one obtained by a tutor teaching other types of subjects, such as mathematics or language, since they are subjects developed at the classroom level, in which gamification and cooperative work can be better applied. She also stated that there is a reluctance on the part of the teaching staff to implement this methodology because it involves too much work, and they suffer from burnout syndrome, due to the large number of bureaucratic procedures that the administration imposes on teachers currently. Besides, the context of the center about the relationship between co-workers is not the desired one, so several teachers who do want to work on this methodology have asked for a transfer for the next course.

Conclusion

The courses implemented by the CCE are a good source for teachers in terms of updating their pedagogical training, as well as the possibility of establishing a significant network of contacts with other teachers from different geographical points of the region to exchange opinions and educational practices. These centers act as a meeting point in the search for efficiency in educational practice.

The administration offers through the teacher training centers a valuable tool for training and sharing experiences to teachers who are currently active at the national level. While our conclusions can only be oriented to the courses that are developed in the CCE of Eastern Andalusia, it is necessary to highlight the commendable action that is carried out through this type of centers.

The structure of the partnerships between schools and CCEs allows a high level of teachers' participation that can be inefficient since it's not voluntary, for instance, a new structure should be consider for this project. Research shows that the joint participation of the members of the educational community in the same project has been useful to improve the relationship between colleagues, due to the practical nature of the methodology (Epstein, 2018).

References

Akçay, R. C., & Yıldırım, R. (2014). Evaluating the continuing education centers in terms of lifelong learning. *Procedia-Social and Behavioral Sciences*, *116*, 1756-1762.

Epstein, J. L. (2018). *School, family, and community partnerships: Preparing educators and improving schools*. Routledge

de Educación, C., & de Andalucía, C. D. L. J. (1986). Decreto 16/1986, de 5 de febrero, sobre creación y funcionamiento de los centros de profesores.

de España, G. (2015). Orden ECD/65/2015, de 21 de enero, por la que se describen las relaciones entre las competencias, los contenidos y los criterios de evaluación de la

educación primaria, la educación secundaria obligatoria y el bachillerato. *Boletín oficial del estado*, *25*, 6986-7003.

de España, G. (2013). Ley Orgánica 8/2013, de 9 de diciembre, para la mejora de la calidad educativa. *Boletín Oficial del Estado. Disponible en: www. boe. es/diario_boe/txt. php*.

Eraut, M. (2002). *Developing professional knowledge and competence*. Routledge

Kennedy, M. M. (2016). How does professional development improve teaching? *Review of educational research*, *86*(4), 945-980

Musset, P. (2010). Initial teacher education and continuing training policies in a comparative perspective.

Yan, C., & He, C. (2011). Enhancing part-time in-service teacher training programmes to facilitate rural teacher development in China. *Prospects*, *41*(4), 553-566.

"Opening up education" – a research-based development in vocational education

Case study

The Hungarian context

The education system in Hungary was established and is maintained by the state, local governments, minority local governments, legal entities (foundations, churches, etc.) as well as natural persons. About 90 per cent of children attend public sector institutions. However, in 2013 the maintenance of the system was centralized when the state took over all public education institutions from the local authorities with an exception of the kindergartens. While the local authorities get funds from the central budget to maintain the kindergartens, the rest are operated through the Klebelsberg Institution Maintenance Centre established by the state (Ronay, 2019).

The education system is divided into five phases namely Crèche (ISCED 0 for 3 years) Primary and lower secondary education (ISCED 1 and 2 for 8 years) General secondary schools ((ISCED 3-upper secondary and vocational schools), Higher education (ISCED 5A, 5B, 6 for public and private universities as well as colleges) and Adult education and training at all ISCED levels. With a minimum requirement of BA, one can teach ISCED 1and 2 while to teach ISCED 2 and 3 you need an MA (Eurydice, 2019a).

The pre-service teacher training has undergone several changes to improve on teaching competencies such as increasing the number of pedagogy, psychology and methodology practical classes and seminars. From the traditional dual training structure, to the multi-cycle training and the Bologna process, the 2011 Higher Education Act is the basis of the current system and established "undivided training" in an effort to eradicate the errors of the Bologna process (Pusztai & Engler, 2014).

In the current system, kindergarten teachers are trained based on pedagogy, and psychology in concurrence with theoretical, methodological, and practical training for three years and practice constitutes 30% of total training time (Eurydice, 2019b). As for the primary, lower and upper secondary school teachers, the concurrent training was discarded in 2017 and the undivided training adopted in the 2017/18 academic year. In this current structure, training is conducted on two majors-one on how to teach and the other on the special field of choice. The credits given for the performance. In these two majors denote scores for pedagogy and psychology scores for continuous teaching practices and scores for special methodology (Pusztai & Engler, 2014). Other pre-service training includes the 4-year training of Conductor teachers for physically handicapped people and the 4-year Bachelor's degree in special educational pedagogy for disabled young people and adults.

Seven universities and colleges offer teacher training either as distinct faculties of teacher training or integrated into schools of natural sciences, humanities, or social science. Those teachers who are trained in colleges graduate after four years and are qualified to teach in kindergartens and primary schools. Those trained in universities train for five years and are then qualified to teach in secondary schools.

In addition, teachers can engage in continuing professional development (CPD) in form of in-service teacher training programs that started in the 1990s. School principals have the option of reducing teacher workloads if the teachers are involved in in-service training

programs and while the participation is obligatory in nature failure to meet the 120 hours in every seven years mark can result to government sanctioning (Eurydice, 2019b).

Vocational Education and Training

In the current structure of vocational education and training there are three types of schools providing VET: 1) vocational grammar schools (*szakgimnázium*) where students also obtain a secondary general school examination certificate next to the **vocational intermediate-level secondary school-leaving examination**, 2) vocational schools (*szakközépiskola*) leading to **ISCED 3 qualification („skilled worker")** and 3) special vocational schools (*szakiskola*) for special needs students.

The provider is the Ministry of Innovation and Technology and vocational education and training is conducted within the frame of 44 vocational training centers, in 381 VET institutions. There are 238 different vocations.[21]

The largest challenges of Hungarian VET is rigid subject structures, dynamically changing professional content and falling student numbers and motivation (Benedek 2016). The low popularity of the training profile is indicated by the fact that percentage of pupils taking part in vocational education is much lower than the EU average. Another challenge is the supply-orientation of the training system and the qualitative and quantitative want of vocational curricula (almost 30% shortage).

The most important recent changes including legislative actions and other policy initiatives aim to address the above-mentioned challenges.

The most recent modification of the Act on Vocational Training and Adult Education came into force on 1st January 2018 aiming to make the system of training in vocational grammar schools more flexible and diverse by broadening the spectrum of dual training possibilities, creating a stronger bond between the vocational training sector and the economy, and providing new, flexible learning opportunities,

With the recent establishment of the Council for Innovations in the Vocational Sector a regular forum for dialogue between key stakeholders of the vocational sector and the government is foreseen in order to determine future developmental trends and to formulate recommendations for infrastructural developments and for the content-related supervision of vocational and adult training sectors.

Also, on the basis of modifying the Act on Vocational Training, Skill Councils were formed. Regulations concerning the skill councils came into force on 1st July 2018. These councils make it possible for stakeholders of a given economic sector to control and modify the professional content of vocational training and adult education. Representatives of each economic sector participate in the work of the council directly. Therefore, the demands of a given sector are represented straightforwardly when formulating vocational content and developing the whole vocational system.

The newly (2019) approved mid-term strategy (VET 4.0.) is the policy answer to the challenges of the 4th Industrial revolution and aims at the renewal of vocational education and training and adult education programmes by responding among others to the challenges of automation and digitalisation, the current supply-driven training system and the lack of support and commitment at the primary school level for career guidance towards vocational education.

Training of VET teachers

VET schools and adult training distinguish between a) teachers of general education (*közismereti szakos tanár*), b) vocational teachers (*szakmai tanár*) and c) vocational trainers

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[21] https://www.kormany.hu/download/9/71/a1000/Szakk%C3%A9pz%C3%A9s.pdf#!DocumentBrowse

(CEDEFOP, 2011). In addition, there are d) practice trainers (*gyakorlati oktató*) who oversee practice conducted in an apprenticeship workshop or an enterprise. VET teachers and trainers are trained in higher education institutions.

There are different tracks of master level vocational teacher training[22]:

- for those who already have a master's level qualification in a special discipline but does not have a teacher degree (2 semesters, 60 ECTS training)
- for those who already have a bachelor level teacher qualification (2 semesters, 60 ECTS training)
- for those who already teach vocational subjects in schools without a teacher qualification (3 semesters, 90 ECTS training)
- for those who do not have a teacher qualification or a master level qualification in a special discipline (4 semesters, 120 ECTS training)
- for those who have vocational trainer qualification (4 semesters, 120 ECTS training)

Summary

The OCD project is a bottom up, micro-level project that is a showcase of innovation in many aspects. It entails school-based curriculum development, employing the opportunities lying in the modern info-communication technology. The use of cloud technology has made it possible to use micro-contents in open access thus creating the potential of horizontal knowledge sharing and network learning. With wide ranging applications the technology allows the uploading and sharing of an ever-increasing complexity of the representation of knowledge. It is implemented with the active involvement of pupils, both in curriculum development and in dissemination activities.

Finally, it is based on school-university partnership, through which it provides opportunity of practice-based learning, of the creation of a shared knowledge background and directly supports the schools' work.

Introduction

This case study focuses on the open content development (OCD) project initiated by the Teacher Training Centre of the Budapest University of Technology and Economics (BME). BME is a leading institution in Hungarian vocational teacher training and further education with considerable professional references. The project is one of the successful applications for the call of the Hungarian Academy of Sciences. The call aimed to encourage research on methods supporting complex teaching approaches and implement interdisciplinary research with the objective to renew pedagogical approaches and methods of knowledge transfer. The prerequisite for applying for the funding was the establishment of a research working group and the involvement of practitioners from institutions of public education[23].

The identified challenges of the current vocational education system in Hungary that the project wished to tackle are:

- the insufficient quality and volume of vocational curriculum content (almost 30% shortage),
- the rigid subject structures versus the dynamically changing professional content,
- and the falling student numbers and motivation (Benedek 2016).

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[22] http://www.mpt.bme.hu/kepzeseink/mesterkepzes/
[23] MTA website: https://mta.hu/tantargy-pedagogiai-kutatasi-program/szakmodszertani-palyazat-kiiras-mta-2016-106147

In addition, one of the main assumptions of the project is that young people's content consumption habits have changed compared to previous generations, due to the active, everyday use of content sharing sites. This gave the idea that the methods that lead to better learning outcomes often include young people producing their own content.

Finally, it is important to note here that the research group have been extensively researching the modern opportunities of visual communication already prior to the project. All this led to the creation of micro-contents with the active involvement of students which is at the core of the OCD project. Micro-contents are small learning units that compress and structure information using concise text and rich visualisation and can effectively support the teaching of comprehensive subjects. They facilitate the easy and fast generation and acquisition of content. The creation of micro-contents is also one of the main focuses of the OCD project.

Research methodology

The case study belongs to the one case, multiple analysis units' type, so that it explores only one case with pre-defined units of analysis. The case has been processed using the analytic approach that does not identify major problems or provide recommendations on how to fix the problems but is used to examine a case and to determine what has happened and why this has happened.

The following analysis units have been previously defined based on extensive literature review, presented in the Literature Review section:

- Stakeholders engagement
- Teacher learning outcomes
- Enabling networks and partnerships
- Program sustainability

When planning the case study, the theoretical method of using minimal theoretical assumptions, the articulation of open ended questions based on the method of induction has been applied (Hammersley & Atkinson, in Szokolszky, 2004). The research was carried out in a loose theoretical frame with open questions, without concrete hypotheses; the hypotheses were formed during the course of research, at the early stage with progressive focusing. The formulation of the research problem was a process; it followed a progressive work on clarifying the internal structure and sharpening the focus. The research topic itself was formed in the course of preparing the case study, in accordance with academic literature.

The limits of the research are strongly tied to the relatively short timeframe which made the repetitive phases of data collection and data processing impossible. This was compensated for with the use of varied data sources. Both elicited (interviews) and extant (project documents and published literature) data have been used (Birks and Mills, 2015).

Documents, such as scientific publications and dissemination materials, that were prepared during the project have been analysed, alongside conducting interviews with the leader of the research, the head of the vocational teacher training centre, the project manager, two school principals and three teachers taking part in the project. Altogether audio files of 420 minute-length were recorded.

Short description of the open content development project

The project started with the elaboration of the research concept and laying of theoretical foundations. Meanwhile the research team made up from faculty members and school

coordinators have been formed. The project is small scale, involving an innovative methodological network of 10-12 schools which opened an opportunity for analysing the practices and impacts of teacher-student interactive open content development.

There were methodological trainings organised by the university to the participating schools, aiming to motivate teacher development, familiarise teachers with innovative techniques, and introduce them the practical opportunities of online collaborative methods between teachers and students.

The main activities during the project were the development and sharing micro-contents in cooperation of faculty and practitioners with the active involvement of students in a network of volunteering schools.

Additional activities involved the preparation of ICT-supported learning framework systems where the contents created could be uploaded, developing the concept of professional development, and piloting newly developed and further developed subject methodology programs through micro-contents to test its effectiveness and efficiency.

On the basis of the experiences gained from this process, the project will generate recommendations and provisions that can be tested on a wider circle of vocational grammar schools and vocational schools.

Throughout the project there is extensive external communication, in forms of conferences, publications and workshops. School participants are also involved in the dissemination of research results as well as in some cases the students who took part in the open curriculum development.

Important precedents

The development of e-learning materials has already started almost a decade ago at BME. During 2013-2014, a total of 29 digital learning materials were developed and various professional content analysis was performed on a randomly selected sample (Benedek & Molnár, 2015). The results showed that even the modern curricula follow linear structures with prevalent verbal content (80%), and the process of change is very slow. This led to further research into the opportunities hidden in ICT-supported learning.

Preparation for the OCD project started already in 2015, which included an extensive research on English literature, international content on vocational didactics and open content development. One characteristic of the research was the strong visual orientation. The OCD research group published a study illustrating the process of research development in 2016 (Benedek, 2016a; Horváth, 2016). A questionnaire conducted during the academic 2015/2016 inquiring about the attitudes of postgraduate students towards ICT-supported learning frameworks.

The OCD project is based on the experiences of several earlier projects as well, i.e. *Establishment of service and research networks supporting vocational teacher training* and *Teachers' training for BME educators* funded through national human resource development programmes, both implemented between 2009 and 2011. These two projects were followed by the one entitled *E-teaching culture and digital content development at BME* between 2011 and 2013, and was directly used as an input for the present project.

However, the most important precedent was the "Visual Learning Lab" (VLL) established at BME in 2008 with the goal of furthering the use of visual technologies – including film, video, and interactive digital media – in the teaching and learning process, and of engaging in high-level research on all aspects of visual education[24]. In the frame of the Visual Learning Lab a research group was established with an aim to examine the modern

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[24] http://www.vll.bme.hu/en/about-us/

opportunities of visual communication in the higher education context. The research also focused on micro-contents.

In addition, the Hungarian Virtual Encyclopedia[25], developed on the basis of the micro-content approach was also a prelude to the OCD project. About 150.000 entries, with an average length of 1400 characters with many cross-references (hyperlinks) were made with the help of prominent experts.

Micro-contents were further applied in the SysBook[26]. Open contents have been developed to support the teaching of the comprehensive subject *Systems and management for everyone,* with the involvement of students. SysBook is a thoroughly cross-referenced e-learning book optimised for small screens, with about 140 content units. Content units form a series, and each unit has six levels of interpretation (image, text, mathematical representation, content from everyday life, theoretical knowledge and education). The involvement of students in open content development can, thus, be considered as a precursor of the OCD project.

The OCD project was also technically supported from the experience of updating and testing a nearly 1000 micro-contents within the *Hungle* framework. This was done in the scope of the orientation course for first grade engineering students[27], with the involvement of the students, and the collaboration of several university teachers (Horváth, 2016). The same year, 2015, students created micro-content with the inclusion of mandatory visual elements in the frame of *Systems in vocational education* course for vocational student teachers. These mini cases were eventually optimised to laptops and smart phones.

Detailed project description

Composition of the team and team development

The following part will show the formation of the project team that was based on previous working relations, voluntariness, and the commitment and mutual interest of the partners.

The project team was created by the head of the research group and 2-3 university lecturers who invited master students of BME's economic and engineering teacher training – usually practitioners in the vocational secondary schools. Therefore practitioners have been involved in the project from the start. Inclusion was based on informal conversations exploring interest and motivation.

PhD students were also included, especially those that explore topic related to the OCD project. In addition, some of the participant vocational teachers were connected to the research on more than one thread. For instance, one was preparing a master curriculum for an innovation class with the aim of obtain a master teacher qualification[28]. Another teacher applied for PhD in the second year of the project[29]. Both of these teachers' topic are closely related to the OCD projects. One of the faculty members of the research group has a strong research interest in knowledge networks for adult training that is his PhD topic.

The research group meets on a monthly or bimonthly basis, with the school coordinators participating. Twice each year the group holds a workshop conference which invites a wider range of the teachers from partner schools, and where the progress and results are presented. One interviewee revealed that she became attracted to the project as a result of participating in

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[25] http://www.hunfi.hu/nyiri/enc/
[26] http://sysbook.sztaki.hu/index_en.php
[27] The title of the course: „I'll be an engineer.
[28] Her topic is: the introduction of a new learning method, the micro-content) (Dobozy, 2016)
[29] Her topic is: economic impact of digital-based education; currently she is studying its pedagogical aspects (information from the interview)

one of these occasions and has been involved in micro-content development at her school more actively ever since.

The bi-annual workshops provide teachers with the opportunity to present and discuss the prepared micro-contents and discuss assessment issues. Two working groups are usually formed to handle issues such as systematising databases and labelling uploaded contents, as well as issues concerning teacher training.

Stakeholder involvement

Vocational teachers participating in the research group became coordinators who play a key role in knowledge transfer between the university and their school.

Contacting schools was done personally and was always based on voluntary engagement. In the first phase of the project four schools were involved and tri-partite memorandums of understanding were signed with the involvement of the school provider. Subsequently, the head and two members of the research group held a few hours of methodological training at the school sites. The participants of the training were asked to prepare micro-contents and upload them to the university server. On average, 6-10 interested teachers per school were involved, but according to the interviewees, 2-4 teachers were more closely involved, including the coordinator. The reason for this was often a lack of time, as well as a high turnover rate of the teaching staff (in one school, only six of the ten teachers are still at the school who participated in the training). According to one interviewee, the turnover rate was 20% of school staff within the 2,5 year of the project. The professional brain drain comes as a consequence of industry offering better conditions for work, but also due to the fact that the work at the educational institutions is frequently and increasingly overburden. Vocational teachers usually teach in several types of training and it is not uncommon that in addition to the weekly 25 hours in public education, there is an extra 15 hours in adult education.

Learners in focus

One of the main assumptions of the project is that, the young people's content consumption habits have changed compared to previous generations, due to the active, everyday use of content sharing sites. This gave the idea that the methods that lead to better learning outcomes often include young people producing their own content.

The distinguishing feature of the so-called Z generation, born between 1995-2005, or the *Homo Interneticus* (Jahnke et al, 2012), compared to previous generations, is that they take the use of Internet for granted. Connecting to the network is necessary and it is seen as an obvious source of information. Fast access is of key importance. Multitasking is also typical of this generation, which is in constant search for information, even though the depth and durability of such search might be doubtful. Taking advantage of this perspective, the OCD project attempted "*to compensate for the inflation of information value*" and undertook to examine the potential of micro-content to add value to education[30] (Horváth, 2016:171).

During the course of research, the project team concluded that information management based on micro-contents is a valuable way to win the Z generation. The development of frameworks for uploading, storing, organising and sharing micro-contents has already begun at this stage. The goal was to facilitate the easy and fast generation and acquisition of content. As one of the interviewees said: "*These micro-contents are the lego elements that are learning units per se. Based on the model that is already used in marketing, sharing a few seconds of content that you want your money based on the time spent there, you can use this knowledge*

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[30] Author's translation

and practice in education, so to achieve a more noble goal, or to put it simply: marketing education contents".

Several student and pupil groups are targeted in the project. On one hand, there are students studying in higher education, engineering training and vocational teacher training. On the other hand, there are pupils of the vocational partner schools, who also form a heterogeneous group ranging from young people in 10-11 grade before taking the matriculation exam to those 18-25 years old participating in post graduate vocational training (OKJ).

Vocational teacher training at BME provides an opportunity to find links between secondary education and higher education, as well as provide continuous feedback between these levels of education (Molnár, 2018). The members of the research group also conducted empirical studies at the launch of the project on students' attitude towards the use of modern mobile technology and new generation methodological solutions and smart digital competence. One of the teachers actively involved in the work of the research team has also carried our empirical research among her pupils on the informal community building effects of pupil content development with very positive results. She found that involvement of pupils led to community development and active, more efficient learning For this, the online learning environment and interactive communication created a favourable developmental environment (Orosz, 2018).

Design-based research

Educational design research is a genre of research in which the iterative development of solutions to complex educational problems provides the setting for scientific inquiry (McKenney & Reeves, 2013). Design-based research is

- pragmatic as it generates usable solutions to problems in practice,
- grounded as it uses theory and empirical findings,
- interventionist as it wants to make a change,
- iterative as there are multiple circles of design/development/testing/revision and
- collaborative as it is based on the partnership of researchers and practitioners.

The OCD project embodies all these characteristics. Design-based planning is widely spread in the engineering profession. The research participants of the OCD project are engineers-educators, who are familiar both with the world of design and education. The researcher who also has the role of project manager described the project as an exponential development. At the beginning, he explained it as letting a thousand flowers bloom-approach which made it possible for many people to come up with a variety of ideas that later on begin to converge towards the end of the project and culminate in one achievement from the work of many people.

The learner as client-approach is also fundamental characteristic of the OCD project. The main research questions ask if it is possible to compile large amount of curricula written according to traditional principles into micro-content units. This leads to questioning if it is possible to collaborate with the pupils/students in this process and how can micro-contents be used effectively in courses for students belonging to different age groups (X, Y, Z generations) (Horváth, 2016). The emphasis is therefore on increasing pupils' activity by upgrading the quantity and quality of visual elements and exploiting the potential of new technology through developing a complex teaching and learning system.

The first year of the project was about conceptualisation, communication and the institutionalisation of interactions. Researchers have developed a number of parallel frameworks for the micro-contents. It was done through constant manoeuvring between the

fragile balance of manageability and complexity. However, complexity has a price, too as some schools became detached at the beginning because they didn't see the concrete benefits for them, according to the interview with one of the principals..

Finally, in the third year of the project (2019) the system that seems to be preferable for the schools were developed (mikrotartalom.hu). So far only a few schools have uploaded any content to the shared project framework, while higher volume of uploads are expected in the final year.

Teachers as key actors

School coordinators play a key role in the project. They are researchers, facilitators, mediators, team workers and teachers at the same time. They share the results of the research group and the generated knowledge with their colleagues at the school level, produce micro-contents and engage the pupils in producing them too. Ultimately, most of them seek to win over more teachers to join the project work. When asked about their motivation, the teachers mentioned that they feel they are developing as researchers and this was seen as a personal goal. Another stimulating notion was the possibility of reforming their teaching practice and creating an effective learning environment, as well as fulfilling a desire for experience-based learning. One teacher reported a significant improvement of teacher-pupil relation by saying: "we speak the same language through the technology". Particularly engineer and economist teachers who are involved in BME teacher training, have enormous potential for transferring research results into practice, and can play a multiplicator role by applying the new methodology.

The OCD project is also a teacher training project. Professional development is based on participants' willingness to learn, therefore, motivation and development goals come from the teachers themselves. Researchers also play a major role in this. They often need appropriate teaching and learning competences and need to be motivated to share them with the teachers. This affects the communication, social and knowledge competences of the researchers. The researcher becomes a professional who listens to teachers and serves as a resource.

The interviews have shown that there is a "hidden resistance" from some teachers and schools, rooted partly in the aforementioned excessive workload and partly in the negative attitude towards change. However, at the same time, schools that show serious commitment often point out remarkable outcomes as it is captured through these quotations by the respondents.

"*I learnt from the children how to do it, how to upload it … I learnt a lot from them*"

"*I am really impressed that it has started, I haven't heard of anything like that 5-6 years ago – and now you can see and hear a lot of new things, I wasn't even expecting it*".

"*The Hungarian teachers began to do things – we started to share ideas, curricula (…) there's a great potential in the teachers' mind (…) each of these initiatives are good to look out from our own world*"

"*This is absolutely fantastic that we can break away from the teacher – student hierarchy*".

"*A common content sharing site was created… this has been a recent development, the result of the las few month…this is very good now*"

"*They (the students) like the micro-contents very much. According to the survey, approximately 75% of them learnt only from them.*".

"*It reinforces the view that even under restrictive rules, without being properly paid, with all extra classes to do, teachers still have methodological freedom*".

Through the work of these innovative teachers, there are huge potentials in the project a) to create a knowledge sharing network, b) to carry out school-based curriculum reform, c) to

involve pupils in curriculum development, d) to explore the opportunities of ICT in teaching and learning and more.

The interviews show that experimenting teachers can flourish even under less favourable macro-policy conditions.

Challenges

The biggest challenge for open content development is additional workload that it creates for the participants. There is also a challenge to orientate in the complex world that combines informal learning and collaborative work, as well as summarising the learning from teamwork based on cooperation and participation. It requires the recognition of knowledge and reflection connected to modern technology and the inherent benefits, such as networking, cooperation, knowledge sharing. As one interviewee noted, everything needs to be done in an "increasingly restrictive and rigid policy environment".

The practice-oriented world of schools is less favourable for time and energy consuming exploratory operation that allow experimentation, with many ideas and initiatives going astray. The reality of schools demands concrete outcomes. Several interviews reinforced this viewpoint. For many schools the breakthrough phenomenon was the introduction of the framework called *mikrotartalom.hu*, which was developed by an IT student teacher member of the research group where the "craft contents" made by the schools can be uploaded. This is reinforced by a school principal who expressed negative feelings towards the vagueness and ambiguity surrounding the project aims and expected outputs at the beginning of the project:

„*So when they were only at the ideas, to figure it out what this open content development is all about, and tried to define different concepts and go through them, then we were less involved, but now, that the developments reached the phase when contents can be uploaded, then we are also starting to try out and develop curriculum units with the kids in the school*".

Again, this principal focuses on direct benefits, missing out on longer term benefits and underlying opportunities.

"*The philosophy of this project is how to make a material, a unit of curriculum that is still digestible and has an effect and is remembered, and proves to be the best method for this age group*".

Some school participants also see indirect opportunities, though:

"*(...) and here we are talking about an enormous amount of curriculum, not only for secondary vocational education, but also for post-secondary education and sectoral, so there is a lot there, and even within the same sector, the expected level is not the same. There will be different micro-contents from the same curricula for the elite vocational schools where the majority of pupils are preparing for competitions and for a vocational school where the majority of pupils are disadvantaged*".

The greatest challenge is convicting the teachers of the benefits. Empirical research confirms that in order to strengthen teachers' commitment, the teachers must feel the project as their own (Postholm, 2008).

Knowledge sharing is often not self-evident for schools, and often they expect to be supported by the university. This creates a challenge in changing the attitude of school leadership and school staff. While there are often few enthusiastic teachers who are actively involved with their students in micro-content development and upload the content to the internal school network, there are many that are not willing to engage. However, at schools that are more successful with using the project, new initiatives spread more easily among collaborative colleagues. Schools often note that they would appreciate a more intense communication on behalf of the university, including support in ways of motivating their colleagues. Teachers also reported feeling alone in their own schools and not finding ways to spread innovative solutions, nor being able to motivate their pupils and colleagues.

There is also a need on behalf of the schools to encourage knowledge sharing among schools. On one hand, uploading the right amount of micro-contents would allow the knowledge and content exchange between schools to start, thus it depends on the activity of the schools when the uploaded content reaches the critical amount that allows sharing and developing collaborations. On the other hand, the university could play a central role in helping schools "to find each other", through teacher training programme. The accredited in-service training developed in the project, and other networks such as leadership training, can play a pivotal role. The regional vocational centres could be involved and brought into a coordinating role.

Opportunities

Together with the challenges mentioned in the previous section, all respondents see enormous potentials in the project. Firstly, new methodological modules have been introduced and tested in the teacher training and in-service training modules and the application of frameworks for vocational use became general. All this has laid the foundations for online collaborative learning. Cloud technology has also made it possible to use micro-contents in open access, wide ranging applications.

Additional opportunities became available for enhancing student user and developer capabilities and the development of a mobile/smart phone application that can be downloaded free is also foreseen. The aim of the project is to actively involve motivated teachers and students in content creation with the potential of community content development. To this end, BME develops advanced ICT-based archiving and retrieval systems and provides significant mass storage and cloud services through the backbone network of HAS. Partner schools can also connect to the backbone service of HAS for free with 8-10 workstations provided locally for them. Cloud services that provide virtually unlimited capacity allow the uploading and sharing of huge amount of visual content and an ever-increasing complexity of the representation of knowledge. This means not only the diversification of demonstration possibilities but also changing communication for learning, focusing on visual elements.

If teachers start to upload more micro-contents, more intense knowledge sharing and the spread of the model can begin. This requires primarily a change in attitude, the traces of which can already be experienced. In order for this spill-over effect to happen, the role of external agents, the university, or the regional vocational centres may be important. Schools would be looking for help from the university in this area.

With the activation of schools, regional vocational centres could also be involved, which can also play a coordinating role in the future. The university has already taken initiatives to present the project to them and to explore the possibilities of cooperation. The last year of the project will be to strengthen networking among the schools – this is only possible with the active involvement of the schools as they are the creators of contents and future fate of cooperation depends on creating and sharing contents.

Potential of content development based on student-teacher interaction will also be explored and assessed this year together with their impacts. Building on these experiences, the research group will make a proposal to involve a wider range of vocational grammar schools and vocational schools and also recommendations for the vocational teacher education. There is the opportunity of collaborative development where the development of micro-contents creates strong and efficient student-teacher horizontal communication that can replace traditional, vertical communication and encourage exit from the world of formal education restricted in time and space.

References

Arhi, T., Pipani, M., Blazici, B. J., Debevc, M., Peternel, M.M. (2009). Enhancing the E-learning in Vocational Education and Training with "VET Community Portal". https://pdfs.semanticscholar.org/a63f/37f4ed9dc8ed4c18662004599b4c168543f5.pdf /Retrieved: 2019.06.29/

Benedek, A. and Molnár, G. (2015). New Approaches to the E-content and E-textbook in Higher Education. In: Chova, G., Martínez, L. and Torres, C. (eds.): INTED2015 Proceedings, 9th International Technology, Education and Development Conference. Madrid, International Academy of Technology, Education and Development (IATED). 3646–3650.

Benedek, A. (2016a). SysBook as a Visual Learning Frame. In: Benedek, A., Veszelszky Á (eds). In the Beginning was the Image. The Omnipresence of Pictures. Peter Lang edition, 161: 170

Benedek, A. (2016b). Új tartalomfejlesztési paradigma a szakmai tanárképzésben. In: Tóth Péter- Hollik Ildikó (szerk): Új kutatások a neveléstudományokban 2015. Pedagógusok, tanulók, iskolák – az értékformálás, az értékközvetítés és az értékteremtés világa. Budapest, ELTE, Eötvös Kiadó, 87-94 p.

Benedek, A. and Molnár, G. (2018). OCD MODEL FOR OPENING UP VET. Conference Paper, March 2018. https://www.researchgate.net/publication/323888734_OCD_MODEL_FOR_OPENING_UP_VET /retrieved: 2019.06.23/

Benedek, A. (2019). Tanterv – tanegység – mikro-tartalom online környezetben. MTA-BME Nyitott Tananyagfejlesztés Kutatócsoport Közlemények 4. évfolyam:(7. sz.) http://www.ocd.bme.hu/wp-content/uploads/2019/04/Tanterv-tananyagegys%C3%A9g-mikro-tartalom-online-k%C3%B6rnyezetben.pdf /Retrieved: 2019.06.15./

Birks M, Mills J. (2015) Grounded theory: a practical guide. 2nd ed. London: SAGE http://healthindisasters.com/images/Books/Grounded-Theory.pdf, (Retrieved: 28 June 2019)

Chun Tie, Y, Birks, M., Francis, K. (2019). Grounded theory research: A design framework for novice researchers. In: Sage Open Med., v. 7. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6318722/ (Retrieved: 28 June 2019)

Dobozy, G. (2016). A Kecskeméti Szakképzési Centrum Kada Elek Közgazdasági Szakgimnáziuma, In: MTA-BME Nyitott Tananyagfejlesztés Kutatócsoport Közlemények 1. évfolyam:(1. sz.) 53-69. pp.

Horváth Cz., J. (2016). Micro-content Generation Framework as a Learning Innovation. In: Benedek, A., Veszelszky Á (eds). In the Beginning was the Image. The Omnipresence of Pictures. Peter Lang edition, 171:19

Jahnke, I., Bergström, P., Lindwall, K., Mårell-Olsson, E., Olsson, A., Paulsson, F., Vinnervik, P. (2012). http://byggaskola.se/wp-content/uploads/2017/05/Designing-Learning-Spaces-of-Tomorrow.pdf /Retrieved: 2019.07.03./

McKenney, S. and Reeves, T.C. (2013). Educational Design Research. DOI: 10.1007/978-1-4614-3185-5_11 https://www.researchgate.net/publication/265092587_Educational_Design_Research /Retrieved: 2019.07.03./

Molnár, Gy. (2018). Hozzájárulás a digitális pedagógia jelenéhez és jövőjéhez (eredmények és perspektívák). MTA-BME Nyitott Tananyagfejlesztési Kutatócsoport Közlemények IV. http://www.ocd.bme.hu/wp-content/uploads/2018/06/Hozz%C3%A1j%C3%A1rul%C3%A1s-a-digit%C3%A1lis-

pedag%C3%B3gia-jelen%C3%A9hez-%C3%A9s-
j%C3%B6v%C5%91j%C3%A9hez-201801-4.pdf /Retrieved: 2019.06.19/

Orosz, B. (2018). Digitális tanulói tartalomfejlesztés a tananyagfejlesztésben, mint az informális közösségépítés egyik új lehetősége. Mellearn konferencia előadás, 2018. április 19-20, Debrecen

Postholm, M.B. (2008). The start-up phase in a research and development work project: A foundation for development. Teaching and Teacher Education 24, 575–584

file:///C:/Users/User/Downloads/The_start-up_phase_in_a_research_and_dev.pdf /Retrieved: 2019.07.11.

Sánchez, A., Isaías, P. (Eds.). Proceedings of IADIS Mobile Learning 2012. Berlin, http://www.mlearning-conf.org/ pp. 147-156.

http://byggaskola.se/wp-content/uploads/2017/05/Designing-Learning-Spaces-of-Tomorrow.pdf /Retrieved: 2019.07.05./

Szokolszky, Á. (2004). Kutatómunka a pszichológiában. Osiris Kiadó. https://www.tankonyvtar.hu/hu/tartalom/tamop425/2011_0001_520_kutatomunka_a_p szichologiaban/ch02s05.html#id565107
/Retrieved: 2019.06.25/

Yunga-Godoy, D.C. (2019, *in revi*). School Universty Partnership Case Studies Protocol.

Zitter, I and A. Hoeve (2012). Hybrid Learning Environments: Merging Learing and Work Processes to Facilitate Knowledge Integration and Transitions. *OECD Education Working Papers,* No. 81, OECD Publishing