Exploring Pre-Service Teachers' Perceptions of Research Engagement in Bachelor Studies

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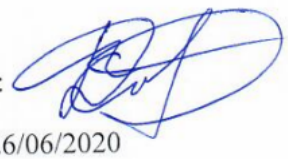
Signed: 

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October 2019

Dear Sabina Daniyarova,

This letter now confirms that your research project entitled: *Exploring Pre-Service Teachers' Perceptions of Research Engagement in Bachelor Studies* has been approved by the Graduate School of Education Ethics Committee of Nazarbayev University.
You may proceed with contacting your preferred research site and commencing your participant recruitment strategy.

Yours sincerely

Zumrad Kataeva

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On behalf of Elaine Sharplin
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Exploring Pre-Service Teachers' Perceptions of Research Engagement in Bachelor Studies

Abstract

Quickly updating knowledge and a changing labor market require people to learn on a continuing basis. In such circumstances, teachers are key players in the development of the necessary skills, especially in light of depreciation of the routine cognitive skills (Schleicher, 2011; World Economic Forum, 2016). The role of research in undergraduate teacher education has received considerable attention worldwide as one of the ways to address the challenge of developing skills for the 21st century (Munthe & Rogne, 2015; Niemi & Nevgi, 2014; Atmaca, 2017). In effect, official professional standards for teachers establish research skills as one of the occupational prerequisites in Kazakhstan (Atameken, 2017). Within the confines of the Kazakhstani educational system, all bachelor students, as part of their qualifying examinations, are required to write a thesis as a capstone research project (MoES, 2018). In light of this, the present study aimed to explore pre-service teachers' perceptions of research engagement at one university of Kazakhstan. Semi-structured interviews were addressed to 14 pre-service teachers of mathematics, Kazakh, Russian and English languages studying in the fourth-year of university. The findings revealed that pre-service teachers' education was focused on learning about the current research in the field as well as on conducting independent student research, which refer to research-led and research-based nature of undergraduate research integration (Healey & Jenkins, 2009). The findings suggest that major perceived benefits of research engagement were improved subject knowledge, enhanced communication, analytical and creative thinking skills. Moreover, research experiences stimulated reflective practice on teaching and learning. The interviews also revealed that pre-service teachers experienced a lack of

resources in Kazakh and Russian languages, poor relationships with supervisors, absence of a choice of topics for research projects as predicaments in their research experiences.

Key words: teacher education, undergraduate research, research-based education

Изучение восприятия научных исследований студентами педагогических специальностей на уровне бакалавриата

Абстракт

Быстрое обновление знаний и изменение рынка труда требуют от людей постоянного обучения. В таких условиях учителя играют ключевую роль в развитии необходимых навыков, особенно в свете обесценивания рутинных когнитивных навыков (Schleicher, 2011; World Economic Forum, 2016). Роль научных исследований в системе высшего педагогического образования получила значительное внимание во всем мире, как один из способов решения проблемы развития навыков XXI века (Munthe & Rogne, 2015; Niemi & Nevgi, 2014; Atmaca, 2017). По существу, официальные профессиональные стандарты для учителей устанавливают исследовательские навыки как одно из обязательных условий профессиональной деятельности в Казахстане (Atameken, 2017). В рамках казахстанской образовательной системы все студенты на уровне бакалавриата для итоговой аттестации обязаны написать дипломную работу в качестве заключительного исследовательского проекта (MoES, 2018). Учитывая вышесказанное, цель настоящего исследования состояла в том, чтобы изучить восприятие исследовательской деятельности студентами педагогических специальностей в одном из университетов Казахстана. Полуструктурированные интервью были проведены с 14 будущими учителями математики, казахского, русского и английского языков, обучающимся на четвертом курсе университета. Полученные результаты показали, что обучение будущих учителей было ориентировано на изучение текущих исследований в этой области, а также на проведение самостоятельных студенческих исследований, которые относятся к научно-ориентированному и научно-обоснованному характеру интеграции

исследований (Healey & Jenkins, 2009). Полученные результаты свидетельствуют о том, что основными воспринимаемыми преимуществами участия в исследованиях были улучшение предметных знаний, коммуникативных, аналитических и творческих навыков мышления. Кроме того, исследовательский опыт стимулировал рефлексивную практику преподавания и обучения. В ходе интервью также выяснилось, что нехватка ресурсов на казахском и русском языках, плохие отношения с руководителями, отсутствие выбора тем для исследовательских проектов были затруднениями в их исследовательском опыте.

Ключевые слова: педагогическое образование, студенческие исследования, научно-исследовательское образование

Бакалавриат деңгейінде педагогикалық мамандықтар студенттерінің ғылыми зерттеулерді қабылдауы

Абстракт

Білімнің жылдам жаңартуы және еңбек нарығының өзгеруі адамдардан тұрақты оқытуды талап етеді. Мұндай жағдайда мұғалімдер қажетті дағдыларды дамытуда маңызды рөл атқарады, әсіресе күнделікті когнитивтік дағдылардың құнсыздануың ескерсек (Schleicher, 2011; World Economic Forum, 2016). Университеттегі педагогикалық білім беру жүйесіндегі ғылыми зерттеулердің рөлі XXI ғасырдың дағдыларын дамыту проблемасын шешудің бір тәсілі ретінде бүкіл әлемде маңызды назарға алынған (Munthe & Rogne, 2015; Niemi & Nevgi, 2014; Atmaca, 2017). Қазақстандық мұғалімдердің ресми кәсіби стандарты бойынша зерттеу дағдылары кәсіби қызметтің міндетті шарттарының бірі ретінде белгіленеді (Atameken, 2017). Қазақстандық білім беру жүйесінің бакалавриат деңгейіндегі барлық студенттер қорытынды аттестаттау үшін дипломдық жұмысты зерттеу жобасы ретінде жазуға міндетті (MoES, 2018). Жоғарыда айтылғандарды ескере отырып, осы зерттеудің мақсаты - Қазақстан университеттерінің бірінде педагогикалық мамандықтар студенттерінің зерттеу қабылдауын зерделеу. Жартылай құрылымдық сұхбаттар университеттің төртінші курсында оқитын 14 болашақ математика, қазақ, орыс және ағылшын тілі мұғалімдерімен өткізілді. Нәтижелер бойынша болашақ мұғалімдерді оқыту осы саладағы зерттеулерді зерттеуге, сондай-ақ өзіндік студенттік зерттеулерді жүргізуге бағытталғанын, демек ғылыми-бағытталған және ғылыми-негізделген зерттеулерді интеграциялаудың сипатына жататының көрсетті (Healey & Jenkins, 2009). Оған қоса зерттеулерге қатысудың негізгі артықшылықтары пәндік білімді, коммуникативтік, аналитикалық және шығармашылық ойлау дағдыларын жақсарту болғанын көрсетеді. Сонымен

қатар, зерттеу тәжірибесі оқыту мен оқытудың рефлексивті тәжірибесін ынталандырды. Сұхбат барысында сондай-ақ қазақ және орыс тілдерінде ресурстардың жетіспеушілігі, ғылыми жетекшілермен нашар қарым-қатынас, зерттеу жобалары үшін тақырыптарды таңдау мүмкіндігі болмауы олардың зерттеу тәжірибесінде қиындық тудырғаны анықталды.

Кілт сөздер: педагогикалық білім беру, студенттік зерттеулер, ғылыми-зерттеу білім беру

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Chapter 1. Introduction

Introduction

In this chapter, I will present background information, statement of the problem, purpose and research questions of the study. The aforementioned sections are vital because they will set the context of the research and serve as a leitmotif for the whole paper. After that, significance of the current research will be discussed followed by a brief outline of the thesis.

Background Information

The matter of 21st century skills has become a highly debated topic all over the world (Schleicher, 2011; European Commission, 2015; National Council for Accreditation of Teacher Education [NCATE], 2010; Niemi & Nevgi, 2014). Quickly updating knowledge and a changing labor market necessitate students and graduates to learn constantly. According to the World Economic Forum (2016), it is expected that advancements in technologies will have far-reaching effects on the employment landscape ranging from job creation to its displacement, increased work productivity to extending skills gaps. In the light of a depreciation of routine cognitive skills (Schleicher, 2011), other proficiencies such as analytical and research-oriented skills, creativity, critical thinking, ICT literacy and social skills will be in high demand (World Economic Forum, 2016). Therefore, the education systems are expected to develop and utilize innovative forms of teaching and learning to prepare future-ready school graduates (Kurshan & McManus, 2017).

In this regard, a new school curriculum reform is being implemented in Kazakhstan. It aims to develop students' functional literacy to be able to effectively operate in the 21st century (MoES, 2018). The hallmark of the renewed curriculum is

training of high-order thinking skills, namely, critical thinking, research skills, utilization of ICT, using knowledge in creative and functional ways, abilities to work both individually and in teams (MoES, 2018). Moreover, teaching research skills to students is one of the requirements for the renewed teachers' qualification categories in addition to compulsory presentations by teachers at scientific conferences, seminars and forums (MoES, 2020). Taking into account the aims of school education that teachers are expected to pursue, it is of strategic importance to develop these skills in pre-service teachers as they need to be able to evaluate and, more importantly, teach those skills to their students.

However, a low quality of teacher preparation is a crucial educational problem and one of the main causes of pupils' unsatisfactory academic performance (Christopher, 2017; Zyl, 2019; Asif, 2013). In the Kazakhstani context, an unsatisfactory quality of teacher graduates has also been the topic of mounting concerns (Tsoy, 2017; Sarsenbayev, 2017; Sadyk, 2019). Besides questioning the current education system for pre-service teachers, the situation is aggravated by the increased demand for teaching personnel, tendency of aging of the teaching staff as well as insufficient renewal of teachers in schools (Tsoy, 2017; Irsaliyev, Kamzoldayev, Tashibayeva & Kopeeva, 2019). In consequence, it can be stated that the matter of teacher education in the Kazakhstani context requires a closer look and investigation for potential reconsiderations and adjustments.

According to the law on the teacher's status (MoES, 2019), professional training of teachers can be carried out in educational organizations that provide educational programs of technical and vocational, higher and/or postgraduate education. The Information Analytical Center (2019) reports that the largest number of state educational grants was allocated for the training of teachers, exceeded only by grants to technical specialists. As a matter of fact, 9499 educational grants have been awarded to enrollees of educational specialties in 2018 (Information Analytical Center, 2019). Taking into account

that 90.5% of school teachers hold degrees from higher education institutions (Information Analytical Center, 2019), it is vital to investigate teachers' education provided by universities.

One of the ways to improve teachers' professional practices and address the 21st century education challenges is undergraduate research (Munthe & Rogne, 2015; European Commission, 2015, British Educational Research Association [BERA], 2014). Scholarly research at undergraduate level promotes logical analysis, encourages collaboration and leadership, and improves critical thinking and problem-solving skills (Manak & Young, 2014; Healey & Jenkins, 2009). Winch, Orchard and Oancea (2014) suggest that research can be used as a supplementary tool for informing and improving teachers' classroom practices and their theoretical knowledge. Scholars argue that schools and higher education institutions should nurture research-rich environments in which teachers and researchers collaborate systematically and operate in partnerships (BERA, 2014). Also, it is highlighted that opportunities should be provided to engage in research not only at university but at future school work too. Additionally, it is argued that teachers utilizing research will contribute to the current knowledge on teaching and learning, thereby raising the status of teachers in society (Gentry, Baker, Lamb, & Pate, 2016).

Statement of Problem

In order to successfully teach the students necessary critical and analytical thinking skills, teachers themselves should be engaged in the production of new knowledge and be able to deal with information. In essence, official professional standards for teachers establish research skills as one of the occupational prerequisites (The National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken" [Atameken], 2017). Within the confines of the Kazakhstani educational system, all bachelor students for final qualifying evaluation are required to write a thesis as a capstone research project (MoES, 2018).

However, little is known about the experience and perceptions of Kazakhstani pre-service teachers in regards to research and research-related activities. To address this shortcoming, this study investigates how students of teacher programs perceive research in their learning environment. Furthermore, it should be emphasized that data gained on student perceptions is valuable because the student perceptions of their teaching and learning environment at university directly affect the quality of the learning outcomes (Lizzio, Wilson, & Simons, 2002). Research on the preparation of teachers is needed in order to potentially improve the future quality of teachers and their skills.

Purpose of the Study

The study aims to explore pre-service teachers' perceptions and experiences of research engagement at one university in Kazakhstan. By doing so, the research will attempt to increase our understanding of pre-service teachers' perceptions on research in their respective university.

Research Questions

The study is guided by the following questions:

The overarching research question is 'How do pre-service teachers perceive and experience research engagement at university?'

Within the confines of the broader question, the following sub-questions are included:

- How do undergraduate students of teacher programs engage in research?
- How do students of teacher education programs perceive the influence of research engagement on their professional development?
- What challenges do pre-service teachers experience in their research engagement at bachelor teacher programs?

Significance of the Study

As the present study seeks to explore future teachers' perceptions and experiences of research engagement, it will give students an opportunity to share their views, perceptions and attitudes about research in their education. Moreover, participation in the study will allow pre-service teachers to reflect on their learning and future school work. In addition, the findings will be beneficial to faculty members of teacher preparation programs and of other fields since they can learn about research integration at university from the students' perspective. In essence, this can be used in the form of a feedback for program managers, instructors, faculty administration, and senior leadership members. It is hoped that by raising awareness of the aforementioned stakeholders, certain changes can be made to enhance the quality of educational services at teacher programs. Followed by that, the findings of the current study can assist in our comprehension of the role of research and research integration in the university learning environment.

Furthermore, schools administrations are likely to benefit from the study, as they will be provided with a better understanding of the undergraduate teacher education. In consequence, as prospective employers of pre-service teachers, schools administration will be able to use the findings for the benefit of school and planning professional development arrangements accordingly.

Finally, the obtained data of the study can profit policymakers by pointing out the areas for improvement. Considering all of the benefits mentioned above, the present study may contribute to the body of knowledge about research activities at undergraduate level and more specifically at university teacher education programs in the context of Kazakhstani higher education system.

Outline of the Thesis

The thesis consists of six chapters. Chapter 1 will introduce the context of the study, statement of the research problem, purpose of the study and the research questions. In addition, it will identify the main audience for the paper and the reasons of how and why they can benefit from the study. Chapter 2 is going to disclose the existing knowledge in the field of research engagement in teacher education. It will be followed by a conceptual framework that guides the study. Chapter 3 depicts the research design, methodology, sample, data collection procedures and clarifications of how it will be analyzed. The ethical considerations are discussed at the end of this chapter. Chapter 4 consists of findings of the investigation that were guided by the research questions stated. The next section, Chapter 5, will discuss the results in relation to the current literature in the field. Further, Chapter 6 will summarize the findings and their research implications, as well as make recommendations for the stakeholders and future policies. Finally, the limitations of the study will be identified and suggestions will be made for future research.

Chapter 2. Literature Review

Introduction

As the present study aimed to explore pre-service teachers' perceptions of research engagement at one university of Kazakhstan, it was important to gain a better understanding of the research engagement and integration of research in teacher education. The questions of how research can be integrated in undergraduate studies and what role and impact research practices have on professional learning of future teachers are disclosed using a number of sources. Furthermore, previous research discussing the challenges pre-service experience in their research engagements is introduced. By discussing the ways of research integration in undergraduate studies, the current chapter presents conceptual framework that guided the research throughout. Additionally, contextualization of Kazakhstani teacher education is provided in this chapter of the thesis.

Inquiry-Based Learning and Undergraduate Research Practices

Development of research competence among pre-service teachers can be achieved by inquiry-based learning or research-based educational processes. The terms inquiry and research are seen to be used interchangeably indicating corresponding meanings (Healey & Jenkins, 2009; Munthe & Rogne, 2015). Distinguishing between these two concepts can help educators and employers comprehend what focus takes place in teacher preparation. One of the differences was highlighted by Cordingley (2008), indicating that inquiry does not necessarily intend to produce research results for the audience's use. Inquiry refers to a questions-driven learning process relying on a problem- or case-based learning modes to develop research skills (Healey & Jenkins, 2009). Inquiry-based learning can be effective in qualifying students to seek knowledge independently, question the data and most importantly work in evidence-informed ways.

In addition, inquiry-based learning includes student cooperation in pre-service teachers' learning processes. According to a mixed methods study by Laursen, Hassi and Hough (2015), inquiry-based courses encourage pre-service mathematics teachers to share their solutions for given tasks and promote discussion. In a process of discussion, participants in the group could see different perspectives and approaches that allow making a direct adjustment in their perception of teaching mathematics. In such student-centered classrooms, pre-service teachers can express their ideas and be heard, at the same time they also can question the effectiveness of teaching techniques which is an invaluable outcome for the development of reflective teachers. The vitally important finding that should be taken into consideration is that future teachers perceived inquiry-based learning mode as relevant to their teaching work (Laursen et al., 2015). This finding from a considerably large sample of 544 students can also indicate that pre-service teachers do not perceive their profession as a static craft which is a benefit for the popularization of a teacher's profession.

Similar to inquiry-based learning approaches, undergraduate research also seeks to develop student abilities to pursue knowledge autonomously, critically judge information as well as work as evidence-informed specialists. However, a major distinction is that undergraduate research always entails students learning disciplinary methodologies, producing their own works, sharing it in the research community and getting acquainted with the current field developments (Healey & Jenkins , 2009; Reid, 2004). Therefore, students become more active participants of the learning process if the programs contain undergraduate research as part of the curriculum.

Regardless of potential benefits that student research may bring to the table, there are some aspects of its implementation that should not be overlooked. A quite recent study by Brew and Saunders (2020) demonstrate that teacher educators (i.e. faculty members of

teaching programs) hold different views on research-based learning which in turn affects their teaching and communicating it to students. Although research-based education has been practiced since the 1970s in Germany, differing views of professors on research-based education are based on their own teaching experience, but not on theoretical and evidence-based knowledge (Brew & Saunders, 2020). Qualitative data gathered from teacher educators in this study indicate that the research-based approach, in their interpretation, is utilized and aimed at developing students' research competence to improve teaching practices, contribute to school development and understand empirical research in general (Brew & Saunders, 2020). Additionally, all educators emphasize the significant impact of student research in developing critical reflection of pre-service teachers.

Swedish interpretations of research-based education are in line with Finnish and Norwegian views as these teacher education systems require a scientific bachelor or master thesis, active research involvement of faculty members, discussions on recent research developments and learning the research methods to be present in the classrooms (Alvunger & Wahlstrom, 2018). The researchers point out that research based-education also includes the development of students' critical and scientific attitudes towards learning and profession-specific issues. After surveying 2484 fourth-year pre-service teachers from 17 universities, scholars conclude that teacher programs in the sample universities are research-based only because the content of the programs relied on scientific research and students felt more open-minded to various perspectives regarding educational topics. Alvunger and Wahlstrom (2018) argue that unfortunately the literature is mostly based on secondary sources of information. Therefore, students possibly have not learned to search and navigate themselves in the current research in their fields.

Due to the absence of a unified definition for research-based education there is a risk that pre-service teachers who have taken classes from different faculty teachers might confuse the purpose of the research-based education. Therefore, in order to reach success in the implementation of a research-based education system, significant attention should be paid to common understandings of student research concepts in a higher education institution. Regardless of different interpretations, it can be said that inquiry- and research-based learning approaches reinforce links between teaching process and research. Since the conceptualizations of undergraduate research and inquiry-based learning are contentious it is vital for educational researchers to share their methodologies and conceptions.

Influence of Research on Professional Development in Teacher Education

Today a new research-oriented paradigm is becoming more established aiming to refocus the position of current teachers from mere delivering content to being a teacher-researcher capable of reflexive thinking and self-educating (Kozubovska & Popovych, 2015; Niemi & Nevgi, 2014; Munthe & Rogne, 2015). In this vein, a sine qua non of Finnish teacher education is the embedded research component. Formal teacher education in Finland is a five-year long bachelor and master studies with compulsory research conducted in major and pedagogical courses (Ahola & Hoffman, 2012; Toom et al., 2010). According to Toom et al.'s (2010) interpretation of research-based education, all disciplines should be integrated with research in order to develop autonomous teachers who can use research in teaching. The inclusion of a research element is suggested as one of the important policy level decisions that contributed to distinguishing results of 15 year old Finnish students at Program for International Students Assessment (PISA) (Niemi & Nevgi, 2014). A quantitative study by Finnish scholars on student teachers' perceptions revealed that the participants found the research studies during their education as an important element of the learning process (Niemi & Nevgi, 2014). Not only was it

perceived as beneficial to professional development, but it also contributed to students' seeing the profession as a continuous development activity. The majority of participants, however, regarded that research studies should not be the main focus of their education that neglects other subjects and areas for development. Pre-service teachers valued the freedom to choose a topic of interest as it enabled them to link research studies with their prospective career choice. Although most of the students perceived research positively and regarded it as significant, there were students who felt that research studies are irrelevant to their education and their profession, preferring to have more pedagogical disciplines and school practice-based classes (Niemi & Nevgi, 2014). Unfortunately, students also experienced incompetent supervision from professors who did not have a definite understanding of research studies for their program. Therefore, program coordinators and teacher educators should take into account the vitality of clear objectives for student research, extensive support from supervisors and opportunities to link pedagogical practices with research studies.

Recently, Katwijk, Berry, Jansen and Veen (2019) presented a mixed methods study into purposes, learning outcomes and value of pre-service teacher research in Dutch and Australian teacher programs. Similarly to other studies (Agud & Ion, 2019; Demircioglu, 2008; Gentry et al., 2016; Niemi & Nevgi, 2014), the cross-case analysis revealed that students of teaching see research as an effective tool for professional development (Katwijk et al., 2019). The researchers also revealed the empowering feature of research-oriented training supported by increased connection of theory and practice. Besides, it has been identified that students valued research as a communication tool to connect on a professional level with teachers, faculty and principals (Katwijk et al., 2019). The main perceived purpose of the research was developing a critical attitude and an open mind for more efficient learning in the professional milieu. Interestingly, notwithstanding

the positively perceived value of conducting research projects, few students intended to utilize research as an instrument during their work at schools (Katwijk et al., 2019).

In a similar vein of Finnish education, Norwegian higher education institutions are expected to qualify their teacher students to research-based work. National reform that emphasizes research in teacher education has been put in practice relatively recently, in 2010 (Munthe & Rogne, 2015). Unfortunately, research on understanding of research-based education in teacher programs of Norway, its impact and expediency is still limited. Munthe and Rogne (2015) having analyzed survey data from 19 Norwegian universities with teacher programs and interviews with faculty and students, conclude that the contextual framework for research-oriented education of sample universities is varied. In Norway, most of the programs require students to conduct a small-scale research project as a way to acquire necessary skills for carrying out a compulsory bachelor thesis during the third year (out of four). However, the scholars conclude that the overall nature of undergraduate research and inquiry is teacher-focused and views students as audience, not as active participants (Munthe & Rogne, 2015). In other words, the program entailed students learning more about research but not conducting it.

Following this, there was another study conducted by H. W. Afdal and K. Spernes in 2018. The objective of their study was to identify the effective ways of integrating a research-based education model in one Norwegian university (Afdal & Spernes, 2018). As a part of their study, they designed a compulsory “Science of Education” course taught for three years that consolidated practice-oriented and research-based learning activities with writing a bachelor thesis. Scientists created this course based on the conceptual model of Healey and Jenkins (2009) on undergraduate research and inquiry. Various changes were made to the course throughout six years according to concurrently gained qualitative data through focus group discussions, interviews and observations. During this course, students

were given an opportunity to learn how to formulate research questions, pedagogical content knowledge, empirical research about education and teaching matters, scientific approaches to collect data, ways to analyze empirical data and reflect on them. The offered course consisted of "traditional lectures, plenary discussions, group discussions or assignments, and student presentations" (Afdal & Spernes, 2018, p. 220). As a result of their study, they identified that students highly valued an opportunity of cross-communication and reflection on each other's opinions on given discussion questions. Students noted that such an approach makes a great impact on adjustment and improvement of personal approach regarding teaching. Also, students liked caseworks where they were given teachers' daily basis challenges, and they simulated their behavior as if they were teachers. At the beginning of the course students found that the course literature was either too difficult to understand or irrelevant. But it helped them to understand the process of acquiring knowledge and they plan to read academic articles for professional purposes in the future. Furthermore, reading research articles allowed them to gain more knowledge in their fields and was beneficial for planning and writing their thesis. Similar to previous study findings (Niemi & Nevgi, 2014; Munthe & Rogne, 2015), students perceived negatively the fact that there was too much emphasis on research methods rather than teaching methods. It is concluded that via conducting their own research, students acquired new knowledge and perspectives on their professional practices as future teachers. Nevertheless, it should be noted that there were still many students who didn't see the relevance of research-based activities to teachers' necessary skills and knowledge.

With similar goals, Gentry et al. (2016) presented a qualitative phenomenological study to investigate the perceptions of pre-service teachers on their participation in faculty-led research. Although the study`s findings cannot be generalized to all teacher students,

the study provided some insightful data on pre-service teachers' perceptions of conducting research. The authors found that the participants perceived the research experience as transformative from professional and personal perspectives. The participants shared that conducting faculty-led research was a way for them to learn more about the topic they were interested in. As the topic was related to classroom teaching and student learning, students felt it helped them to improve their teaching skills. This facilitated their reflection on future teacher profession and their personal development. Furthermore, upon completing research, pre-service teachers realized the importance of evidence-based practice and how important it is to learn ways of conducting research. Gentry et al. (2016) conclude that in order to reach a supreme level of teacher education programs, there is a need to require research skills from pre-service teachers as it is a critical tool for their profession. Similarly to Niemi and Nevgi (2014), Katwijk et al. (2019), American scholars identified that pre-service teachers value the opportunity to choose the topic of interest, but for a different reason. Gentry et al. (2016) argue that the possibility to select a topic is a way to invigorate curiosity and conserve motivation for carrying out research. It can be seen that it is vital to allow students to find the topic they would like to investigate for better inclusion of a research component in teacher education.

Similar inferences on the role of research were drawn earlier by Demircioglu (2008) claiming that student teachers should be provided with opportunities to conduct their own research to be able to apply research skills at their workplace upon completing studies. He stated that action research can be integrated in the learning process because it includes crucial steps such as problem identification, data collection and analysis, practical implications and decision making based on the findings (Demircioglu, 2008). After carrying out a small-scale research project the student teachers reflected that they will use gained research-related skills and knowledge to recognize teaching problems, locate, read

research works critically and create better learning environments in future teaching practice. Based on the study outcomes, it can be seen that upon completing their own research at studies, they recognize the need for an evidence-based approach in their work. Therefore, researched-based education is highly responsive to daily issues that are faced by teachers during their classroom practice.

In contrast to Demircioglu (2008), a more recent study by Atmaca (2017) shows that Turkish soon-to-be teachers of English doubt they would use it in their school environment. The difference might come from subject peculiarities since Demircioglu (2008) studied pre-service teachers of social studies, not English student teachers. But the general value of research was much lower than in Demircioglu's (2008) study. Atmaca (2017) found that pre-service teachers from two state universities did not see research as an essential part of their education and irrelevant to their profession. Moreover, the study revealed that students are skeptical about the applicability of research findings in Turkey. Additionally, the majority of students are not regular attendees of science-related events that foster research culture. Although all Turkish future teachers take a compulsory research methods course, universities across the country employ different interpretations of the content and purposes of research in teacher education (Atmaca, 2017). It can be seen that there is no unified understanding of research within the confines of teacher education in the Turkish educational context. The author claims there is a need to popularize research skills and have research activities during students' pedagogical practices stating that "student teachers need to breathe the air of research during their pre-service teacher education and feel it in their practicum" (Atmaca, 2017, p.134). An opportunity to practice research skills in the real-life context can help to perceive the research as more feasible practice for teachers.

In addition, there are more countries that have encompassed the research elements in their teacher education. A study by Agud and Ion (2019) has found that the program of teacher education at the University of Barcelona lacks research processes and components. Correspondingly, the students' voices from the study indicated that there were insufficient opportunities of exposure for research, including learning the recent developments in the field of primary education, conducting research projects or even talking to university researchers (Agud & Ion, 2019). Likewise, Norwegian students lacked disclosure of the scientific side of their professors as there wasn't an awareness of faculty's research foci (Munthe & Rogne, 2015). Despite the constrained research integration, Spanish students valued research integration as being central to stimulating the learning process (Agud & Ion, 2019). The authors conclude that there is a need to develop a variety of skills for conducting research, like information skills (acquiring, evaluating), methodological, communication and data analysis skills beginning from the first year as students were more motivated to engage in research activities during their first two academic years. Given that Spanish students did not have to conduct much research on their own, they were recipients of research but not active participants, albeit both are essential to professional development of future teachers.

Practice in Undergraduate Pre-Service Teacher Research Engagement

As the teacher programs typically include teaching practices at potential workplaces the research activities can be implemented during the student teaching in the field. Burn and Mutton (2015) argue that students entering school environments and interacting with working practitioners enable them "to engage in the process of enquiry" by stimulating the analysis of students' needs, development of pedagogical actions and consequent evaluation of the results (p.3). German teacher education programs incorporate research projects during mandatory six-week school practices both at bachelor and master

programs. Program creators aim to “develop a researching-reflective attitude” in relation to the school practice and university learning process and critical reflection on school practice against the pedagogical theories (Brew & Saunders, 2020, p. 5). Matney and Jackson (2017) in their recent study recommend research-field research activities to be a part of the curriculum or course content specifically. The authors found that the use of field research projects in mathematics teacher education increases pre-service teachers’ self- efficacy, referring to their beliefs and confidence in their own abilities and teaching process (Matney & Jackson, 2017). The study also revealed that research in the field more positively affected teaching efficacy than did text-based research that was conducted on campus using the text-based literature (Matney & Jackson, 2017). Such a way of research engagement can be used to prepare teacher-inquirers who can and will use research-based teaching and learning methods. In fact, the latter is one of the conclusions by the National Council of Accreditation in Teacher Education Blue Ribbon Panel which is the US national accrediting agency in teacher education. Furthermore, teacher programs should view practice as “the site for ongoing inquiry” in order to prepare effective teachers that understand student needs (NCATE, 2010, p.11). Practice at school is an opportunity to apply the recent developments in research in the real environment and to develop critical attitude to teacher duties prior to beginning the school work.

Perceived Challenges of Research Engagement in Teacher Education

As was discussed, there are perceived student benefits of research-integrated learning especially for pre-service school teachers. However, there are certain barriers that impede the successful implementation of a research orientation.

As an example, American scholars specializing in undergraduate research, including teacher programs, Manak and Young (2014) suggest that one of the predicaments for research integration is the deficiency of faculty time. The wide array of

faculty's responsibilities can hamper the proper integration of research. Besides teaching the courses, professors are often engaged in providing professional development to local schools, educational outreach to the community, participating in the accreditation committees, and no less important, their own scholarship and research (Manak & Young, 2014). The overload of diverse responsibilities may serve as a reason for why faculty members are unlikely to mentor bachelor teacher students. Additionally, as stated by Lucas (2006) and McNay (1999) separate organization of department-level research and teaching contribute to a structural and perceptual hurdle of involving undergraduates in research and integrating them into a research community (as cited in Healey & Jenkins, 2009, p. 68). In respect of the professoriate, Norwegian scholars express a different concern related to the research experience of the latter. Munthe and Rogne (2015) claim universities that have a low number of PhD degree holders as faculty are less efficacious in fostering a culture of research. The lower scholarly backgrounds can complicate the students' exposure to the existing scientific knowledge in the field and might not allow students to see teachers as researchers.

Additionally, curriculum alignments might entail limited space for undergraduate research experience. Manak and Young (2014) report that most of the US teacher programs are harmonized with the accreditation standards, national curriculum benchmarks of the International Reading Association, National Science Teachers Association and other similar organizations. Adjustment of undergraduate research may face the issue of curriculum frameworks differing from country to country. Leading British experts also indicate the impact of curriculum restrictions, pointing out the instability and fragmentariness of national curriculum reforms (BERA, 2014). Therefore, user-friendly curriculum integration is a crucial point that requires a careful approach in order to overcome one of the common barriers existing in the USA and the UK.

Another barrier is the heavy course loads of students that can impede their willingness to engage in research. The scholars highlight that from the faculty's perspective research experience, it can be overwhelming when taking into account the practicum experiences, course loads, work and volunteering activities (Manak &Young, 2014). Due to the high load, it is understandable that students are lacking time that is required for conducting research with an adequate quality that would make a valuable impact. Thus, the curriculum of students should be adjusted in accordance with the integration of research-based education system.

The Kazakhstani Context for Research-Based Teacher Education

Kazakhstani Higher education system including teacher education was highly influenced by the USSR. In the Soviet period, the curriculum for teacher education was based on three pillars of knowledge: specialized courses (e.g. mathematics, Russian language) that comprised 70% of the studies, social disciplines and the pedagogical disciplines (Kerr, 1991). Educational processes were based on memorization, listening and copying lecture materials, oral examination on the provided set of theory-based questions (Burkhalter & Shegebayev, 2012). Smolentseva, Huisman and Froumin (2018) argue that another distinctive feature of Soviet higher education was institutional separation of research from the educational organizations. Research was carried out in sectoral institutes directly connected to specific industries and ministries. In such circumstances, the major role of higher education institutions was to prepare workforce for the national economy making the higher education substantially vocational industry (Smolentseva et al., 2018). After gaining independence, post -Soviet educational reforms in Kazakhstan have embarked a start for adoption of Western educational trends such as student-centered learning, privatization of education, liberalization of textbook publishing and integration of research into higher education system (Yakavets, Bridges, & Shamatov, 2017).

In addition to the responsibility of teachers to prepare students ready for the 21st century challenges, the concept of evidence-based policy and practice brings forward the importance of research-oriented teacher education. The Kazakhstani education system can benefit if it is ensured that external assessment findings are more consistently utilized to inform the learning and teaching processes in schools (OECD, 2018). However, taking into consideration the comprehensiveness of the educational phenomena, it is forewarned that evidence should not come solely from outside of the professional field but also from in-situ inquiries (European Commission, 2015). Meaning that, the subject of research should be based on practical issues that are faced on a daily basis by teachers in their class experience. Therefore, decisions on teaching and learning should be based on external and internal evidence. Otherwise, the research-based approach would not bring in any value to the improvement of teaching methodologies and techniques, as there would be no room to investigate arising classroom problems.

Examining the expectations and requirements that are established for teachers in Kazakhstan, it becomes clear that teaching implies not only conducting lessons with pre-defined instructions. In effect, inquiry-based orientation in teacher's work is emphasized in Kazakhstani regulations of Typical Qualification Characteristics of Teacher Positions and Personnel Equated to Them:

> … [Teacher] Competently uses a variety of forms, methods, techniques and means of training, is able to apply innovative technologies. Utilizes a scientific-methodological approach to planning, is able to refine and adjust the program material...Can independently develop authentic and alternative programs, adapt methodical guides taking into account the regional component. (MoES, 2009)

In the same vein, research function is prescribed in the official professional standards for teachers. According to the standards, teachers are required to have skills for independent diagnostics of individual student characteristics, knowledge of research methods in pedagogy, principles and methods of educational research for inquiry into

educational environment and practice as well as independent use of the research results in solving pedagogical tasks (Atameken, 2017). Based on teacher duties required in Kazakhstan (MoES, 2009) and the emphasized role of teachers as important evidence and knowledge creators (OECD, 2018) there is a necessity for teachers to have the competences for systemic knowledge processes and inquiry. Furthermore, if teaching is viewed as a static craft, it assumes the reduced incentives for professional growth. Considered this way, teaching is likely to be far less attractive to aspiring and high-caliber candidates who can potentially improve the students' performances. In the current Kazakhstani educational system, all bachelor students for final evaluation are required to write a thesis as a capstone research project (MoES, 2018). However, little is known about the experience and perceptions of Kazakhstani pre-service teachers in regards to research and research-related activities. Learning about Kazakhstani pre-service teachers perceptions of research in their studies is vital for the improvement of the current curricula given that research capacity is prescribed in teacher qualification (MoES, 2009).

Conceptual Framework

The existing literature proposes two main concepts of undergraduate research and inquiry-based learning that can be utilized to promote research-oriented learning. Healey and Jenkins (2009) who specify both of the concepts, acknowledging the contentions in linking the terms, suggest that they are "certainly complementary and mutually reinforcing" (p.22). As both of the learning modes can contribute to the development of the research skills of pre-service teachers, the conceptual framework for research and inquiry is based on Healey and Jenkins (2009) model should be examined carefully in the study. Four sections of the given framework discern different ways of research integration in the learning process of undergraduate students. Furthermore, the current framework

distinguishes student engagement by the extent to which they act as participants or as the audience.

*Figure 1.*The nature of undergraduate research and inquiry

STUDENTS ARE PARTICIPANTS

	Research-tutored	**Research-based**	
Emphasis on research content	Engagement in research discussions	Undertaking research and inquiry	***Emphasis on research processes and problems***
	Research-led	**Research-oriented**	
	Learning about current research in the field	Developing research and inquiry skills and techniques	

STUDENTS FREQUENTLY ARE AN AUDIENCE

Source: Healey and Jenkins (2009)

Additionally, it classifies the approach as being focused on the content or research processes and problems. Research-led learning can be characterized as learning when students have opportunities to learn about the research in their areas. The authors do not specify the exact activities that could be pertained to this quadrant. It is suggested that it can be done through sessions on academic reading, predefined exercises on research papers, student interviews of academicians on their research foci, lectures where students actively receive knowledge in response to questions and problems framed by instructors (Hodsdon, 2009; Afdal & Spernes, 2018). The bottom right-hand quadrant of research-oriented education distinguishes aspects of learning when students are more focused on the research processes and problems rather than on research content. Students are still not active participants in research but now they learn research methods, skills and techniques needed for independent research activity. In the teacher education context of research-oriented learning, Afdal and Spernes (2018) suggest following objectives for professional

outcomes: analytical attitude to work, learning systematic pupil observation, competent conversations with children, determination of professional challenges and their methodical exploration. Further, the research-tutored learning process is characterized by students' active engagement in critical discussions of the research. Bachelor students in this case have a more active role, although they do not conduct a research autonomously. Seminars on academic reading, discussions on the selection of the appropriate research methods, collaborative critiques of journal articles can be implemented in research-tutored way of engagement with research and inquiry (Hodsdon, 2009; Afdal & Spernes, 2018). Finally, in research-based education, students undertake research and act as participants and creators of knowledge, not as mere recipients of knowledge. Pre-service teachers' bachelor theses, internships research assignments, academic writing sessions, studies conducted individually and in groups can be instances of the research-based section of the framework (Healey & Jenkins, 2009; Hodsdon, 2009; Munthe & Rogne, 2015; Afdal & Spernes, 2018). The authors consider that students would benefit from the learning process lying in the upper part of the model, rather than in the bottom half (Healey & Jenkins, 2009). However, solely research-tutored and research-based approaches might be less beneficial than a program that is composed of all elements equally.

This chapter provided the readers with extant literature on research integration in undergraduate studies, role of research-related experiences on professional growth of pre-service teachers and the conceptual framework that directed the study. The reviewed literature on research-based teacher programs is mainly comprised of studies from countries with high-ranked education systems, such as Norway, Finland, the Netherlands and the USA. There are a scarce number of inquiries that investigate the nature of current teacher preparation in Kazakhstan. If the matter of how research competence is addressed (Syzdykbayeva, Bainazarova, & Aitzhanova, 2015), it is investigated among the in-service

teachers as part of the professional development training. In addition, the available resources on Kazakhstani teachers suggest the issue of poor preparation of teachers, the shortages of teaching staff, and low prestige of the profession (Sarsenbayev, 2017; Sadyk, 2019; Information Analytical Center, 2019). Therefore, a study focused on how bachelor students of teacher programs are trained in relation to their research capabilities is needed. The next chapter will provide a detailed description of the research design, research site, data collection and analysis of the current study.

Chapter 3. Methodology

Introduction

This chapter introduces and provides justification for the research methodology chosen to explore pre-service teachers' research-related experiences in bachelor studies. To be more specific, it will illuminate the research design selected for the study followed by a description of the research site. After that, the study's sample, data collection tool, as well as procedures of data collection and analysis will be discussed. Finally, ethical considerations are outlined in the end of the chapter.

Research Design

In order to attain answers to research questions, a non-experimental qualitative design was applied. The qualitative research design was chosen as it can allow scrutinizing the participants' experiences in depth and disclosing more detailed information on the topic (Creswell, 2012). It is argued that more profound comprehension of the issue can be achieved by "unpacking the meanings people ascribe to their lives - to activities, situations, circumstances, people, and objects" which is characteristic to qualitative research methods (Leavy, 2017, p. 124). Additionally, Given (2008) states that qualitative research is focused on understanding gained by delving into people's words, interactions, actions or records produced. In light of the mentioned above, the qualitative research design is suggested to be appropriate for disclosing student perceptions and experiences. Moreover, qualitative research methodology can "uncover salient issues" by providing understanding of the lived experiences (Tracy, 2013, p.5). This is especially relevant since one of the research questions is related to challenges and barriers that pre-service teachers experience in their research engagements.

In addition, it should be highlighted that this study seeks to give a voice to pre-service teachers of one Kazakhstani university and consequently learn their opinions on research in their education. Therefore, the qualitative research design is opted to be more suitable as it is utilized when the scholars need to "empower individuals to share their stories, hear their voices" (Creswell, 2013, p.79). By hearing the voice of pre-service teachers in this study, educational stakeholders have an opportunity to learn more about student teachers' concerns and expectations.

Research Site

The research site for this study is a Kazakhstani university that offers undergraduate programs for teacher preparation. Although professional preparation of teachers is implemented in technical and vocational (colleges) and at higher and/or postgraduate education institutions (universities), 90.5% of the school teachers have degrees from higher education institutions (MoES, 2019; Information Analytical Center, 2019). Taking this into consideration, university was selected for the study's research site since more teachers choose universities for gaining education. The university under investigation, which will be further referred to as University A, has around ten schools that offer full-time bachelor, master and PhD programs. Admission to University A is carried out on the basis of state educational grants as well as on a contractual fee basis. Also, it should be mentioned that the university has accreditations of local and international accreditation agencies such as Independent Quality Assurance Agency (IQAA), Accreditation Certification and Quality Assurance Institute (ACQUIN) and others.

Sample

The study employed purposeful and snowball sampling strategies to recruit participants. Morse (2010) and Patton (2015) argue that purposeful sampling presupposes that a researcher seeks "information-rich cases" in order to better meet the research

purpose and questions posed (as cited in Leavy, 2017, p. 79). As the focus of the paper is on the experiences of pre-service teachers at bachelor studies, the main criterion for selection was that the participants study in undergraduate programs that will qualify them as teachers of a particular subject upon graduation. Since it is important to study the experiences of participants in a detailed manner, it was decided to include only 4th year students. It was done because by the time of data collection, senior students would have completed the majority of the required courses. Thus, they are able to share their views on research at different stages of undergraduate education.

Followed by the year of study as a criterion for inclusion, it was important to include future teachers of particular subjects. In the Kazakhstani system of education, certain subject teachers are in higher demand across the country. The schools currently need teachers of mathematics, Russian and English languages more than other subject specialists (Information Analytical Center, 2019; Forbes.kz, 2017; Shayakhmetova, 2017). Kazakh is the official language of the country and an indispensable subject for local schools (MoES, 2019). The importance of Kazakh, Russian and English subjects is also conditioned by the policy of trilingual education in Kazakhstan (MoES, 2019). Since the Kazakh language subject is present in school curriculums from grade one until graduation, it was important to include students of Kazakh language and literature specialty. Given the current necessity of the aforementioned subject teachers and significance of Kazakh language teachers, the study included pre-service teachers of mathematics, Russian language and literature, English language, Kazakh language and literature, all studying in their fourth year of university. Snowball sampling was also applied at a later stage so that participants could give contacts of those who qualify for the inclusion. Cohen, Manion and Morrison (2007) suggest that this way of sampling can be used when an outside researcher has difficulties to access a research site, which was the case in this study.

Table 1

Information about the participants of the study

Participant	Gender	Subject	Specialty	Year of study	Language of instruction at bachelor studies
Lyazzat	F	Mathematics	Mathematics	4	Kazakh
Gulnaz	F	Mathematics	Mathematics	4	Kazakh
Serik	M	Mathematics	Mathematics	4	Kazakh
Aizhan	F	Kazakh language and literature	Kazakh language and literature	4	Kazakh
Aizere	F	Kazakh language and literature	Kazakh language and literature	4	Kazakh
Nurila	F	Kazakh language and literature	Philology (Kazakh language)	4	Kazakh
Alexandra	F	Russian language and literature	Philology (Russian language)	4	Russian
Guldana	F	Russian language and literature	Philology (Russian language)	4	Russian
Nurdana	F	English language	Foreign languages: two foreign languages	4	Kazakh
Anel	F	English language	Foreign languages: two foreign languages	4	Kazakh
Madina	F	English language	Foreign languages: two foreign languages	4	Kazakh
Gulnar	F	English language	Foreign languages: two foreign languages	4	Kazakh
Assem	F	English language	Foreign languages: two foreign languages	4	Kazakh
Karina	F	English language	Foreign Philology	4	Kazakh

Data Collection Tools

The present research employed an interview method as a means of gathering qualitative data on the topic. Tracy (2013) refers to interview as a guided question and answer patterned conversation. As people are naturally conversational, this data collection method relies on situations that are generally habitual to people (Brinkmann, 2013). Given that an interview is a conversation-based method and is a naturally familiar communicative process, it was assumed that it would be more appealing for participants to take part in the

study. Also, an interview is a research tool that enables one to discuss the participants' interpretations of the world as well as to learn their points of views on certain situations (Cohen et al., 2007). Furthermore, Creswell (2012) argues that a qualitative research interview serves as a tool for attaining verbal data "unconstrained by any perspectives of the researcher or past research findings". Thus, it was assumed that this type of data collection tool can help gain a more profound understanding of the student teachers' experiences.

Although there are many types of interviews that have their own advantages and disadvantages, for the purposes of this study I selected the one-on-one semi-structured interview with open ended-questions. One-on-one interview involves asking questions and receiving answers "from only one participant in the study at a time" and is frequently used in educational research (Creswell, 2012, p. 218). Following that, the semi-structured interview with open-ended questions allows asking follow-up questions, moving from one topic to another based on the interview flow (Given, 2008). Therefore, it can provide opportunities to elaborate on specifically important points. Besides, such flexibility is useful to change the wording of some questions or their order depending upon participants' particular responses. Moreover, this interview type enables asking supplementary questions that start with 'why' to elaborate or clarify given responses (Cohen et al., 2007). Taking into consideration that the study's main purpose is to explore pre-service teachers' perceptions and experiences, the semi-structured interview was considered particularly useful as a data collection tool.

Data Collection Procedures

The data collection process began in December 2018, and continued until February 2019. In order to access the research site of University A, I approached a gatekeeper who could introduce me to potential participants. I explained to the fourth-year students of

teacher programs the overall purpose of the study and the importance of learning about their perceptions and experiences on the topic. Six students were willing to take part in the research. The students later were able to provide me with contacts of other eligible students who would be interested to give an interview for this research. I provided the participants with informed consent forms that had complete information on the purpose, research methods, potential risks, and benefits of the study, contact information of researcher and supervisor and guarantee of the confidentiality. The participants had a choice of language for the interview and selected Russian or Kazakh languages for questions and answers. Translation services were not needed as I have a good command of Kazakh and Russian languages. All interviews lasted from 30 to 40 minutes and were held either in quiet places or via phone call at a mutually convenient time.

Data Analysis

This section of Methodology chapter will describe the procedures related to the analysis of the obtained data. All fourteen interviews were transcribed manually in Microsoft Word documents. It was important that interviews were transcribed verbatim as this could help me to revert to data and be able to reflect for further analysis when needed. As the participants chose to respond in Russian and Kazakh languages, the obtained data were transcribed in these languages and later coded in English. Some fragments were translated into English and were used as part of the findings section. To ensure the precise meaning expressed in interviews, only slight changes were made in the English version of fragments. Since a considerable amount of data was collected, it was organized in folders according to subject groups. More specifically, the acquired data was subdivided into four sets of data according to the subjects that pre-service teachers will teach (English, Kazakh language and literature, Russian language and literature, mathematics).

After the transcription process was completed, I read the transcribed documents carefully and made notes of ideas and points to get a general sense of the collected data. Only then I began the data coding and analysis process. In order to code and analyze interview transcripts, I followed the steps in the coding procedure outlined by John Creswell (2012). To begin with, I divided texts into segments and assigned codes to the words and phrases. Then I compiled a list of identified codes, grouping similar ones together to reduce the number of codes. This allowed me to develop several themes based on coded segments. Finally, themes from all interview transcripts were combined and analyzed against the posed research questions and examined literature

Ethical Considerations

The principles of ethics were followed at all stages of the current study in accordance with ethics guidelines of the NUGSE Research Committee. The process of data collection began only after obtaining approval from the NUGSE Research Committee.

Anonymity and confidentiality of the participants was ensured throughout the research process. To elaborate, the interviews required personal information from the participants in a way that does not allow readers to identify the respondents' identities. Besides, the interviewees' names remained anonymous and were replaced with pseudonyms to ensure participants' privacy and confidentiality. As was mentioned in the research site section, the university studied in this research was only referred to as 'University A'. Furthermore, as some specialty names are typical to the research site, using the original specialty titles could have disclosed the university. Taking this into account, some of the specialty names were changed to broader titles such as 'Philology (Kazakh/ Russian language)'.

The participants were preliminarily informed that all gathered information will only be used for the purposes of the current study. Only in case where participants gave

permission for recording, the interviews were recorded using a phone audio recorder. All participants were told that taking part in the study was voluntary and they had the right to stop the interviews at any moment. Necessary explanations on the risks and benefits of the study were provided prior to beginning the interviews. The participants were informed that they can ask questions or refuse to answer any of the questions in case they don't feel comfortable to do so. Upon completion of an interview, each recording was deleted from the mobile phone and downloaded to my personal computer secured by password access. No other parties had access to the computer and the password was changed regularly. After two years following data analysis and submission of the thesis's final version, all interview related materials such as notes and audio recordings will be deleted. The results of the current paper were used only for the purposes of academic matter.

Chapter 4. Findings

Introduction

This chapter will disclose pre-service teachers' experiences and perceptions on research engagement in their bachelor studies. The following themes will be elaborated in the respective sections: (a) pre-service teachers' engagement in research, (b) impact of research experience on professional development , (c) challenges in research engagement. In order to provide a glimpse into participants' perceptions, this chapter contains exact words and phrases from the interviews. The first theme will be presented according to dimensions of Healey and Jenkins (2009) conceptual model of research and inquiry. In other words, interview responses for the first research question will be analyzed and introduced according to whether their experiences are research-based, research-led, research-oriented or research-tutored.

Participants

For the purposes of the current study, 14 participants were recruited, who will be further referred to as 'pre-service teachers' or 'student teachers'. All participants are representatives of the fourth-year cohort of their programs in 2019-2020 academic years. Three pre-service teachers of mathematics took part in the study including the only male participant in the sample. Two future teachers of Kazakh language and literature were from "Kazakh language and literature" specialty and 1 from "Philology (Kazakh language)" program. The key difference between the programs is that students of "Philology (Kazakh language)" specialty have more linguistics and literature-related subjects and fewer pedagogical disciplines. Since the graduates of both programs can be qualified to work in secondary education schools as teachers of Kazakh language, students of both specialties were eligible for inclusion. Likewise, education of 2 participants from "Philology (Russian

language)" program and 1 student from Foreign Philology specialty emphasized linguistics and philology disciplines more than pedagogical. Yet, they still qualify for school teachers of their respective subjects upon graduation. The largest subject group of participants was pre-service teachers of English in the number of 6 senior students.

Pre-Service Teachers' Engagement in Research

Research-based education. The students' university curricula consisted of pedagogical disciplines (e.g. methods of teaching of Russian/Kazakh/English language/ mathematics), subject-specific courses (e.g. stylistics of Russian language, English practical phonetics, history of Kazakh literature, mathematical analysis), obligatory disciplines of general education such as Kazakh or Russian Language, English as the second language, history of Kazakhstan, philosophy, political science etc. It was found that requirements for the qualifying examination are similar across the sampled specialties. Pre-service teachers need to complete all the required theoretical courses, pass the state exams on subject and pedagogical disciplines, successfully complete professional practices with subsequent submissions of the prescribed reports to university instructors and last but not least, write and defend a bachelor thesis. In addition to these requirements, pre-service teachers of English had mandatory submission of two term papers in their third year of study.

According to the conceptual model (Healey & Jenkins, 2009), research-based education implies a way of engagement with research in which students undertake their own studies with particular research questions and problems with the help of current literature. It is possible that students work in small groups or individually under guidance. It was found that conducting research for a thesis is mandatory for all students. In fact, all pre-service teachers were in the process of writing their bachelor theses as interviews were conducted in the second half of their fourth academic year at university.

The participants in the sample had some differences in regard to their independent research experiences. Most of the topics of the sample participants were related to educational research, however, some of them were related to linguistics, like the theses topics of three Kazakh and two Russian language pre-service teachers. Unlike them, students of English and mathematics teacher programs were engaged in research directly associated with classroom learning, methods of teaching in school. According to participants' responses, all students had the opportunity to conduct research at school practice. Two of three future teachers of English and mathematics linked their research for theses with professional school practicum. To elaborate, they conducted educational experiments related to teaching their subjects at mandatory school practices in one of Kazakhstani schools and implemented observation of teaching and learning process. Linguistic topics of Kazakh and Russian language students were not linked with school practice, even though they have "pre-diploma" school practice at school settings. The interviews with Kazakh and Russian language pre-service teachers indicate that they were not engaged in empirical research but rather in the analysis of secondary source data in the fields related to language and literature studies.

Besides writing and conducting research for theses, students had term papers research experiences. A term paper is a small piece research on a particular topic that students write according to the guidelines and standards provided by the University A. Students of English language were bound to write and present two term papers in their 3rd year. One is on a linguistics topic, the other one should be on teaching methodology of English topic. Mathematics students write only one term paper in the 4th year. Students of Russian and Kazakh language teacher programs do not have a requirement for such kind of work. But Kazakh and Russian language pre-service teachers had similar to term paper

works in a few of the disciplines that were final papers and essential parts of the assessment.

Research-led education. The following part will focus on research-led section of the conceptual framework which was discussed in the literature review. According to Healey and Jenkins (2009), research-led ways to integrate research prescribe bachelor students to learn about current research in their corresponding fields.

Besides conducting research for obligatory elements of study, students were engaged in research activities such as participation in conferences. Some students took part in scientific conferences as passive listeners and some were presenters of their research results. Half of the participants in the study had been engaged in research activities outside class work. These students either wrote articles based on their term papers, submitted abstracts and articles to different scientific conferences. In each of four subject groups at least one participant was actively involved in research by writing articles and presenting findings at conferences.

Although conducting small research projects for term papers was not a demand for Kazakh and Russian language and literature specialty students, they had quite a rich experience with research. Both Russian language and literature pre-service teachers annually participated in conferences presenting their articles in their fields. It was found that it is related to faculty members' active role in attracting bachelor students to engage in research activities. The students were regularly informed about scientific conferences held at university or other conferences suitable for students. One pre-service teacher of Russian language and literature, Alexandra, told about active involvements in research activities and research-supportive atmosphere at university:

> For example, we can participate in conference for young researchers; I participated in it from the 1st year. This year, in 2019, in November, our university fully funded a trip to international conference dedicated to Russian language. So, we constantly

> receive letters from other countries about conferences, if we have good material and opportunity, it is possible to take part without any problems at our department.

The second pre-service teacher of Russian language and literature by the 4th year at university has written seven articles and was a frequent participant at scientific conferences. Both pre-service teachers of Russian were active in research engagements and had very positive attitudes towards research-related activities. Two of three Kazakh language student teachers had extra research experience similar to Russian pre-service teachers. Teacher educators (university instructors at teacher programs) usually asked if students would like to conduct research and write an article for conferences. Students volunteered and gained extracurricular research experience by taking part in conferences as presenters and/or passive participants.

Kazakh and Russian language teacher students were guided by their professors in extracurricular research. Oftentimes teachers approached them and suggested particular topics to research. Outside class research were mostly initiated by the professors, and students took up these new initiatives as they felt supported by faculty members. However, none of their research was related to teaching and learning but solely to linguistics and literature studies.

Learning about research at the conferences was one of the ways to engage with research. However, one of the participants (pre-service-teacher of Kazakh language and literature) mentioned that she and her peers were compelled to participate in conference. Their curator (faculty member in charge of the group) informed her that it was mandatory to visit academic conferences even if students did not have an interest or desire to take part in them.

> Yes, we had a lot of conferences. But... our curator made us visit these conferences; we didn't want to take part in them. If only we were asked to go there in a different way! If teachers generated interest to it, we would have a different attitude I think. (Aizere, pre-service teacher of Kazakh language and literature)

It is noteworthy that she also feels that research at university is developed "in the closed form", referring to the unawareness of peer students' involvement in the research projects. She suggests public appraisals of student researchers as this could motivate others to engage in research too.

> For example, if the congratulations and accolades were public, in front of everyone. If these studies and student achievements were announced in groups of undergraduate students, it would be better. We do not have such official announcements and congratulations and teachers do not announce it either. I think this could motivate our students. You know they could somehow show, announce the achievements of students in front of students at least. (Aizere, pre-service teacher of Kazakh language and literature)

Besides learning about the research at the conferences, students also had disciplines where they were asked to read articles related to their fields. All respondents except one pre-service teacher of mathematics commented that they read articles for the studied disciplines. Two other pre-service teachers of mathematics reflect that they were told about new and useful articles, they read them, but it was not mandatory to read them for the classes.

The findings suggest that learning about topical and recent research in the fields was significant component of the learning process. Yet, reading articles to know more about current research developments was not emphasized in education of pre-service teachers of mathematics. Based on the interviews with future mathematics teachers, the classes were mostly focused on solving mathematical problems and development of analytical skills. As the learning process is dependent on instructors' ideas and teaching approaches, it is possible that it was teacher educators' decision to not to use research articles for the classroom activities.

Research-tutored education. Research-tutored education is characterized by the engagement in research discussions (Healey & Jenkins, 2009). Classes of pre-service teachers of Kazakh language and literature included searching academic articles, reading

and sharing their thoughts on articles. Such experiences were described by two participants, Aizhan and Aizere. In relation to this, a pre-service teacher commented the following about the learning process:

> We ourselves had to study the topic at home and bring it [article]. We are given the author and title of the article, we search for it and read the article for the lesson. In the class, we discussed the articles. If two people found and read the same article, it was okay because they can have different points of view on this article, this is how we discuss and share our opinions (Aizhan, pre-service teacher of Kazakh language and literature).

The third interview with future teacher of Kazakh indicated reading articles was part of student independent work, but further class discussions were not present in her learning experiences. It may be related to the fact that this pre-service teacher was from a different specialty Philology (Kazakh language) and, therefore, her experiences are different from the other two students. Based on the interview responses, education of pre-service teachers of mathematics also did not emphasize learning and discussing current research in the field. As mentioned previously, their classes did not require reading recent articles at all and did not include student discussion of different research papers.

Six pre-service teachers of English reflected on theory-based nature of articles they were asked to read. According to the interview answers, the articles students used were mostly comprised of secondary source theoretical materials taken from internet resources and very rare academic articles from scientific journals. The students shared that they had to search for articles as part of their home assignments and present them for peers via class presentations. The students could discuss the readings during questions and answers after presentations. The students such class discussions helped them to improve their subject-specific knowledge and abilities to think analytically.

Research-oriented education. Based on the Healey and Jenkins (2009) framework, research oriented education entails students learning various methods and techniques utilized to investigate the research problem. Only students of the mathematics

department report they had a subject dedicated to research studies. This compulsory discipline was implemented only in their 4th year. Students were not allowed to choose the period when they would like to take that course. Pre-service mathematics teachers studied general introduction to research, types of research, research methods, kinds of academic papers and how to write them. One of the assessment criteria was writing a small-scale research paper on an topic related either to ways of solving mathematical problems or teaching methodology of particular mathematics topics to school students. The participants indicate that prior to the course they didn't have any research experience unless university instructors initiated it. Two pre-service teachers, in fact, didn't have any research before the 4th year. One participant had research experience only because instructor suggested writing an article. Students could take up the same topic for their theses which was considered to be helpful.

It was found that students were told how to write research papers only by their supervisors. Explanation of what is research and how to do it was shallow. Here is how pre-service teacher of Kazakh language and literature, Nurila, describes it:

> We were just given a topic and told that 'You can go to the library or use the electronic library. You know where the dissertations are. Here you are.' That's all. In other words, they didn't tell us what to write or how to write it.

Unfortunately, similar responses were present in 12 interviews out of 14. Analogous answers on perfunctory explanations about the essence of research and research methods, however, were not present in two interviews with pre-service teachers of Russian language and literature. It might be related to the fact that these students were actively involved in research activities as they both wrote several articles for academic conferences. Furthermore, these students report that several university instructors of their program used conduction of small-scale studies and writing final reports as part of course evaluation. It is possible that due to a more expanded use of research in the learning process, pre-service

teachers of Russian language and literature didn't have vague understanding about research.

Impact of Research Experiences on Professional Development

Influence on professional competences. Research experiences had different benefits for the students. Almost all participants from the study indicate improvement in their subject knowledge. The participants state that they had to do a lot of reading for the topics they researched and this helped them to gain deeper knowledge in the subjects (English, Kazakh language and literature, Russian language and literature, mathematics). Teacher students value this as not only better knowledge preparedness for school work but also as a contribution to their self-confidence and certainty in professional skills. One of the respondents describes her boost of confidence and better preparedness to school work as she can "freely explain [topic] to children, now I can freely answer any question" (Aizere, pre-service Kazakh language and literature).

> When you research, you read, work on your own, not under the pressure of the teacher, you start to understand the topic better. It becomes easier for you to explain something to other people, that is, to my students now [at school practice]. Through research work you understand a lot yourself. You kind of let information go through you and you can easily explain it to any student. And if you don't understand a certain term or word yourself, you can get confused at your own lesson and you won't be able to answer the students ' questions. Research work helps with this very well. (Guldana, pre-service teacher of Russian language and literature)

Increased belief in their own abilities made students feel more prepared for subsequent school work. Given the current demand for teachers at school, this is a significant benefit. It is assumed that, if students feel confident in their abilities, they would be less intimidated by the work at school and more likely to serve as teachers.

Additionally, pre-service teachers observed improvements in their communication skills, which are essential to any teacher. This was also a great contributor to self-confidence. Students feel less stressed about speaking to and in front of different

audiences. The respondents feel more comfortable to talk and present new information to children. Participant studying at Kazakh language and literature teacher program, Aizhan, describes her feelings by saying: “I am not shy about working with children, communicating with them, performing in public anymore, and I have also learned how to improvise because I had to present my research works at conferences and research project contests.”

Moreover, the positive influence on communication skills affected how students feel in conversations with professors. More than half of participants felt more competent in speaking to faculty members. In this regard, a prospective teacher of English, Karina, mentioned the following:

> I can talk to teachers [at university] at their level. I used to have only a school level of knowledge, now we are students-researchers. Since we have now developed our skills through research, we can talk to teachers on the same level, and we can discuss things freely, on the same level.

Engagement in research stimulated an increase of confidence by making students leave their comfort zones. A pre-service teacher of Russian language and literature pointed this out by saying the following “when you had to hand out questionnaires, ask a stranger, you overcome your fears… all of these were steps out of my comfort zone in the first place” (Alexandra).

On the whole, students are very positive about their research experience and its influence on their learning. The vast majority feel that they will definitely use the research experience at school site. One of the ways they see it can be used is acting as scientific supervisors for pupils who participate in research projects.

All participants report that they improved their thinking abilities after or during their research-related experiences. In fact, students consider this is the skill they were able to develop in the first place. Pre-service teachers think that locating literature, reading,

analyzing different sources of information requires them to be analytical to think critically. In this regard, a Russian language and literature pre-service teacher reflected the following:

> We analyze in broader scales, and so our brain began to work more widely. We learned how to look from a distance, and this helped. That is, engagement in research helped to develop the skill to see all the connections and threads at once. (Guldana, pre-service teacher Russian language and literature)

Another Russian language pre-service teacher, Alexandra, reflects “I think I acquired a structure of thinking. When I write an article I don’t just tell my impressions on sources but I analyze them and give my inferences.”

Besides improved analytical and critical thinking skills, research also entailed better decision making. In this regard, Gulnaz, future teacher of mathematics says “I couldn't think of some things before... for example, when you need to solve a problem, it is easy to come up with solutions and ideas of different scale and nature.”

All pre-service teachers of Russian, mathematics, two pre-service teachers of Kazakh and one future teacher of English shared that engagement in research activities facilitated their reflection on performance.

> After each performance [conference], I analyzed myself, how I performed, how I answered. I sat and thought about it myself, and then I asked other participants and professor for their opinions. It's the same at school, when the students sit with clear eyes and you know that they have understood the material. (Guldana, pre-service teacher Russian language and literature)

Besides connecting it with school work, participants linked reflective practices with an increased feeling of responsibility.

> I don't know, I learned to structure my thinking to kind of question-answer, goal-result pattern. It's like in the study, I set myself a few goals, I think why I do it. I do it in order to have more responsibility. (Alexandra, pre-service teacher of Russian language and literature)

Some students (9 out of 14) report that research-related activities contributed to the development of creative thinking. It was found that reading different sources for research

made them think outside the box to make their writing stand out from others. In relation to this, Assem mentions the following:

> When you write term papers you read research papers of other scientists, you compare them, and think how you can be more original. You try to be more creative, original and to come up with something different… maybe tables and diagrams in different layouts, maybe lesson plans in a different format.

As some of the students conducted research at school practice, some (2 English and 1 mathematics student teachers) associated improved creative thinking skills to teaching practice they had as part of their research. These students report that they used a variety of teaching resources to make their lessons more interesting and memorable.

The findings suggest that not only reading resources for research and school practice had impact on creative thinking but also student participation in scientific conferences. Listening to different research presentations ignited new ideas for their current and prospective research. One of the pre-service teachers of mathematics, Lyazzat, explains it in the following way:

> So with research, you get new information and start thinking, 'What if I do that? What if I do it this way or another?' Therefore, there is a big impact on thinking skills and for development of creative skills. For example, when I listen to other people's presentations at conferences, I develop new ideas about my topic or on a different and new topic. All this comes through such experiences.

Ability to use information properly is one of the demands of current times. The interviews showed that the majority of students feel they are more proficient in finding, interpreting, selecting sources of information and building a bibliography according to recognized conventions. However, five students (2 mathematics, 1 Kazakh, 2 English pre-service teachers) report they don't see any influence of research experience on their information skills. Two participants (pre-service teachers of Kazakh) noted that their university instructor taught them about information search and selection. It should be noted that only these participants mentioned learning it as part of the discipline. Aizhan described the following: "For example, we had a subject Teaching Methodology, there our instructor

taught us searching correct and proven resources in the right way, and she also gave us a list of good books and websites"

Value of research as future teachers. Students feel that skills that they gained will be used when they start their professional life as teachers at school. The students feel more confident about teaching analytical skills to pupils in the future as they were engaged in research at university. Students also feel that it will be applicable for their personal life in solving everyday problems. Pre-service teacher of mathematics Lyazzat described:

> As future teachers, we will definitely use it. This is clear because teachers themselves must use their analytical skills and teach them to children. And in general, in any situation, if you are able to look at the situation critically, you can find the right solution.

The other prospective way to utilize gained research-related knowledge and skills is being a supervisor for pupils' science projects at school, city and region level contests.

> If I go to graduate school, this experience will definitely be useful. I think the experience of writing a thesis will influence how I will write a dissertation and articles. And at the school... there are students who write scientific projects at the school level, I can be their scientific supervisor. I can supervise students for scientific projects. (Gulnaz, pre-service teacher of mathematics)

Regardless of how active the participants were in their research experiences, they quite positively perceive these experiences.

> I can for example teach children to search, develop inquiring attitudes to knowledge. The knowledge that students get from teachers and the knowledge that they acquire themselves are different types of knowledge. Information that they learned by inquiry, they will remember it well and forget information from teachers. A teacher just gives the directions…I think teaching research skills is the responsibility of every teacher at school. We can develop these skills through motivation and interest to the topic. (Aizere, pre-service teacher of Kazakh language and literature)

As part of learning about students' perceptions and attitudes to research experiences, it was also important to know what are pre-service teachers' opinions on the role of research in their education. Students were asked why they think they were provided with research experiences. There was not a unanimous response in the interviews. Five students (3 pre-service teachers of Kazakh language and literature and 2 of English

language) responded that the main reason is to enrich the knowledge on the subject, teaching and learning matters. One of the participants commented on it in the following way “Because for example, when I research a topic on the Internet, then I find other sources, I learn much more. And if we only studied what our teachers give us, we would be limited in our knowledge.” (Aizhan, pre-service teacher of Kazakh)

Some unexpected answers were identified in the interviews of pre-service teachers of Russian language and literature. Alexandra considered that the reason for inclusion of research elements in their programs was the need to renew academic staff of universities. The second reason she mentions is that university demands it: “Science and research are always supported. I don't know, maybe we have it because it is in accordance with the university requisites”. Guldana, the second representative of prospective teachers of Russian language and literature, considered that she and her peers are engaged in research due to the need to promote science and research in general and to stimulate exploration of Russian language and literature specifically. None of them connected research activities with the work of teachers at schools.

Two pre-service teachers of mathematics suggested that research opportunities are inserted in their education in order to develop analytical skills and be able to teach such skills in the future. The third teacher student of mathematics perceived that gaining new knowledge on subject teaching is the main objective of research in their university preparation.

The remaining four students directly connected research experiences with teachers’ work at schools. Such responses came from pre-service teachers of English. Karina, Gulnar, Madina and Assem highlighted the need for evidence-informed teaching practices and regarded it as one of the reasons for undergraduate research.

> In order to create lesson plans in our future profession, as teachers, we must rely on sources. We must be research literate and be able to find information and materials

> of any kind. From these materials, we should be able to identify something important for us to include in the educational process and continue to use it in the future. (Assem, pre-service teacher of English).

Madina also points out that in addition to learning about other studies in the field they now can create new knowledge. She was the only one who mentioned the role of a knowledge creator. Regardless of positive perceptions of research experiences to professional development, most participants state they will not conduct research at school. Yet, the students value analytical, communication, creative thinking skills and enhanced subject knowledge skills to be used at school.

Challenges in Research Experiences

Problems with resources for research. One of the research questions for the study was what challenges pre-service teachers experience in their research activities and consequent development of research skills. Almost all students shared the lack of resources as one of the challenges. The lack of resources was of two kinds: lack of resources by Kazakhstani researchers and resources available in Kazakh and Russian languages. All students in the sample (except Russian language pre-service teachers) have Kazakh language of instruction in their bachelor studies. They indicate the lack of resources in Russian as well as in Kazakh. This can also mean that the students are not aware of good resource databases with materials. There wasn't a particular workshop designated to using library resources or searching information. The students learned how to search information from their teachers after or during classes, but it is usually not part of the discipline.

Language difficulties. It was found that all pre-service teachers of English wrote their bachelor theses in English. The students could choose either Kazakh as it was the language of instruction or English for term papers and thesis. All students decided to choose English as they felt they could improve their command of English via research work. Nurdana comments it this way:

> We write our theses in English and before that our term papers were also in English. That is, we had a choice whether to write in Kazakh or English. Well, I chose English since we have many English subjects. And I think we should write in English because this way we can improve our skills in learning English.

As students opted English for their research projects, most of them experiences difficulties in academic writing and understanding resources in English. One of future English teachers, Gulnar, shares the following: “It was an obstacle for me because in the beginning it was very difficult. To be honest, the language was arduous for me and I couldn’t understand anything”. Such issues were common in English pre-service teacher’s part of sample as five students shared such experiences in the interviews.

Relationships with supervisors. One of the hindrances to more positive research-related experiences was poor support from supervisors. Students don’t receive sufficient guidance from their supervisors and teachers 1in regards to research. Incompetent supervision led to negative experiences in research and lower engagement with research. The majority of students don’t feel motivated to conduct research as they lack support from their supervisors. It terms of this, it is argued that teachers and prospective supervisors for theses and scientific projects are key players in engaging and motivating students in research activities. As was mentioned earlier, all students perceive research experiences positively reflecting on different benefits that they were able to acquire. But prospective teachers are not motivated to do research, although they didn’t regard lack of time and/or poor time management as a predicament. In effect, students had opportunities to conduct research and participate in conferences but they were not explained the objectives and advantages if they did so. One of the participants, Aizere, pre-service teacher of Kazakh language and literature stated the following, referring to the demotivation she went through:

> And there are those who want to write but there is no support for them and they don't write any more… I'm one of them. For example, in my 1st year at university, I wanted to continue one study that I researched at school. I went to a teacher, who mentioned that he could be my scientific supervisor, but he always did not have time and I lost interest and motivation to write, so I quit.

A student teacher of Russian language and literature refers to incompetent supervision by reflecting during the interview by saying "if you see a student who wants to develop, you need to support them, and not to criticize. For example, saying you didn't follow the standards without proper guidance is wrong, it causes depression in students." (Guldana, pre-service teacher of Russian language and literature).

University professors are vital in preparation of future teachers, not only in terms of their teaching but also in relation to student research, and how they communicate their research with the university community. Faculty members represent an excellent opportunity to ignite interest in bachelor students towards research activities and help them learn about educational research. According to interviews, only some of the teachers share what academic areas they are interested in, what research they conducted and plan to investigate.

Selecting research topics. When participants were asked about the experiences of conducting research, it was found that some participants could choose a topic of their own interest but some students were not provided with such choice. This might indicate about differing approaches to student research engagement across the studied departments of University A. Six students selected based on their interests, four participants were given a list of topics from which they could choose one and four students were bound to take the given topic from professors. The findings suggest that all students consider that they should be allowed to choose topics that are in line with their interests or career views. Choosing from the list is inconvenient since the students might not like the topic if they are

choosing the last from a group of supervisees. The students (except one), having chosen from the given list of topics, were not content about and felt frustrated.

> I think teachers should leave the choice of topics to students because at the moment some teachers already have certain topics in my mind and they force students to take them. And we do not have a choice, even if we do not like it. (Anel, pre-service teacher of English)

Although, one pre-service teacher of English, positively comments about the matter of selecting a topic from a provided list. She comments the following: “All three times [writing two term papers, bachelor thesis] I used the offered topics from supervisors. But I am very positive about this because teachers know better what topics to suggest to students, they have more experience” (Madina, pre-service teacher of English). These two students are from the same cohort but had different experiences in regards to choosing the topic. This might signify that the procedures for students’ research are interpreted differently by the faculty members and they can set their own requirements for supervisees. The aforementioned findings are further analyzed in the next chapter of the thesis.

Chapter 5. Discussion

Introduction

This chapter presents a discussion of the study findings in regards to the research questions that guided this study and the literature review that directed it. The chapter will be divided into three sections. The first section will discuss the research-related experiences of Kazakhstani pre-service teachers. The second part will analyze the impact of research engagement on professional development of pre-service teachers. Further challenges faced by participants in their research experiences will be discussed in the third part. As the starting point in relation to the theory was the model of undergraduate research and inquiry of Healey and Jenkins (2009), this discussion chapter will be addressed against the four dimensions of research integration.

Pre-Service Teachers' Research-Related Experiences

It was identified that all students were required to conduct research at different scales. Therefore, participants' education is *research-based* as students undertake an inquiry independently (Healey & Jenkins, 2009). Pre-service teachers in the present study were required to write a bachelor's thesis which must be the result of their own research work. Additionally, the students conducted small-scale research tasks, either as part of the course evaluation or as separately assessed term papers prescribed in the curriculum. Many undergraduate teacher programs worldwide require a bachelor's and master's theses as part of the studies with at least one obligatory small-scale research project (Munthe & Rogne, 2015; Brew & Saunders, 2020; Niemi & Nevgi, 2014; Afdal & Spernes, 2018). According to Toom et al.'s (2010) interpretation of research-based education, the purpose of a master's or bachelor's thesis is to learn something practical or theoretical based on the research, learn how to write a formal research report rather than produce new knowledge in

the field. Most of the students in the current study noted better subject knowledge after independent research work and during writing their theses. However, it is not clear what kind of objectives and outcomes were expected from the students.

It was found that all students had an opportunity to connect their research with their practice at school, which contributed to their practical teaching knowledge and skills. Such integration of school practicum and research is present in Finnish education of teachers and considered as "optimal situation" between theoretical knowledge and action (Toom et al., 2010, p 339). Increased self-efficacy was found as one of the benefits of research projects performed at school practice (Matney & Jackson, 2017). This finding is consistent with the current study as students felt they could improve their teaching skills via research at school. Participants in Katwijk et al.'s (2019) study found research valuable because they could connect theory and practice, although their research assignments were not conducted at school. Thus, it is possible to link theoretical aspects of pedagogy with school practice even without school-based research. Unlike Katwijk et al. (2019), Finnish pre-service teachers in Niemi and Nevgi's (2014) study lacked a connection to practice and suggested that research experiences could be improved if they were more linked with classroom practices and pedagogy. Likewise, Turkish soon-to-be teachers of English experienced the gap between theory and practice, subsequently they expressed disapproving attitudes towards research projects. In light of this, it is argued to pay considerable attention to practice and theory link within research integration.

Based on the interviews, students had different experiences regarding the selection of topics for research projects. Some participants were obligated to take the suggested topic and were not content with the experience. These participants were not given an opportunity to select a topic and consequently felt demotivated because the topic was not interesting for them. Participants that were given the opportunity to choose a topic of interest highly

valued this opportunity as they felt more motivated and ignited by the interesting topic. This finding is consistent with previous studies in teacher education by Niemi and Nevgi (2014), Gentry et al. (2016), Katwijk et al. (2019). The present study concurs with the paper by Gentry et al. (2016) who stated that having an interest in the topic incentivizes curiosity and brings more motivation to carry on with challenging research projects. in relation to this, Katwijk et al. (2019) argue that giving students an opportunity to choose the topic can help build their teacher identity. Additionally, pre-service teachers better understand what kind of researcher they would like to be, what topics are more interesting for them. Interestingly, it might seem a small thing for university instructors but students perceived it as a form of support from university and supervisors. Students experienced the work with supervisors better if they were given a choice to decide on what topic they want to investigate.

By exploring the research-related experiences of pre-service teachers, the study also sought to assess whether students' education allowed them to learn about current research in the field. According to Healey and Jenkins' (2009) research-led way of integrating research in undergraduate education, students should learn about the research in their corresponding areas. Thirteen students commented that they were asked to read secondary source materials and articles of an academic nature. It is assumed that students could learn about recent research from such readings, therefore, it can be referred to as *research-led*. But only pre-service teachers of mathematics did not emphasize that their learning required them to learn about current research in their respective area. According to the findings, their classes were focused on solving mathematical problems of different complexity, but not research-related learning activities. It might indicate that faculty members of mathematics department do not see research and research competences as important part of future teachers' education. In this case, learning whether the course literature and syllabi

are based on the academic studies in the field can help in understanding the information base that faculty members use.

One more way of learning about the current research in the field was participation in scientific events. Thus, it can be regarded as one of the ways of research-led education. In the present study, half of the participants took part in conferences and had positive perceptions about it. In the quantitative study by Atmaca (2017), about half of the students (from total 149 participants) were not regular attendees of academic events like scientific conferences or seminars and most students noted that they had insufficient opportunities to participate in academic events. The other half of the participants expressed positive mixed with some negative perceptions of participation in such research-related events. Atmaca (2017) suggests that exposure in research culture by participation in conferences improved students teaching skills, research techniques and knowledge, broadened their perspectives on teaching and contributed to their professional development. In this study, however, students did not report perceived benefits regarding their teaching skills. But participants commented that participation in academic conferences helped them to improve communication and thinking skills, more specifically creative thinking. Although the students did not mention teaching skills directly, the perceived benefits are also quite important for teachers. In a similar vein, Spanish pre-service teachers regarded they did not have a lot of opportunities to integrate with the research community or even talk with researchers (Agud & Ion, 2019). As only half of the participants in the current study were engaged with research via academic conferences, it is argued to promote and stimulate student participation in academic events for more awareness of current research issues and facilitation of prospective evidence-informed teaching practice at schools.

Based on the findings, *research-tutored* education, which involves active engagement in research discussions, was not particularly emphasized in the studied teacher

programs. Students of specialties related to Kazakh and Russian languages had to read articles at home, share their opinions in the class engaging in discussion. Although pre-service teachers of English had some articles discussions, students could interact in discussions only as part of questions for class presentations. The interviews suggest the use of research articles from academic journals was uncommon and that English student teachers used articles based on theoretical materials that had to be retold in presentation. Education of mathematics pre-service teachers did not include discussions of recent research at all. It is suggested that course instructors did not regard learning about and discussing recent studies from the field as important for students. The literature similarly suggests discussions of articles as part of courses. A more comprehensive approach was implemented only in Afdal and Spernes's (2018) study. The authors describe implementing academic reading seminars and sessions for giving feedback on academic writing dedicated to research discussions, learning academic vocabulary, and scientific methods knowledge specifically aimed at engage students in research discussions. Upon completing such seminars, the students felt they were able to critically assess conclusions of studies and question the findings (Afdal & Spernes, 2018). The students in the present study did not specify being more critical to different studies, but perceived only improvement in subject knowledge and abilities to think creatively and analytically as a result of such class discussions.

All of the interviewees valued research as part of their studies. However, some participants commented that they will not implement research studies in their future school work. Katwijk et al. (2019) report similar findings stating that students positively perceived research for their learning and professional development in their study, however, they did not intend to conduct research in their future work as teachers. Likewise, Atmaca (2017) claimed the majority of pre-service teachers doubted they would be able to conduct

research in a school setting. Strokova (2016) suggests that young teachers who are just entering the profession experience difficult adaptation to school work, a high work load, lack of free time and financial challenges to be published in academic journals. These are the possible reasons why graduates of teacher programs are not engaged in research upon completion of studies. Unfortunately, it means that either the university research experience might not be sufficient, have strikingly low quality or the school work virtually does not require any research from the teachers. Therefore, school administration and policy makers focusing on school education should investigate this matter more since teachers engaged in research are able to act in more evidence-informed ways and potentially improve their classroom practices (European Commission, 2015; OECD, 2018).

Impact of Research Engagement on Professional Development

Participants of the present study reflected on their research experiences and shared many benefits of research to their professional development. All of the study interviewees argued for the positive influence of research experiences on their professional development. This supports other similar studies conducted in other countries (Agud & Ion, 2019; Niemi & Nevgi, 2014; Katwijk et al., 2019; Demircioglu, 2008; Atmaca, 2017; Afdal & Spernes, 2018). Katwijk et al. (2019) report empowerment as one of the perceived values of research as students were able to question the current standards and felt more competent communicators after conducting research projects. Findings of this study support this perceived benefit as Kazakhstani pre-service teachers noted improved communication skills. Similarly to Australian and Dutch pre-service teachers in Katwijk et al.'s (2019) article, participants felt they could connect with professors on a professional level. More than a half of the current study's sample reflected feeling more competent and professional in discussions with professors. Regarding the influence of research experience on communication, Gentry et al. (2016) report that pre-service teachers valued

communications with peer student researchers and working in teams. This theme did not emerge in this study. The main reason for this can be that all research projects were done individually under the guidance of a faculty member but not in groups of peer students. The scientists argue that collaborative peer interactions can enhance the development of research skills and should be a core element of research-based curricula in teacher programs (Gentry et al., 2016). In order to diversify research experiences and benefit pre-service teachers' professional development in the future, research in groups or collaborative research activities can be utilized in the teacher programs.

The majority of students feel that they acquired valuable subject knowledge in their fields. Due to that students reflected on feeling better prepared for school work in the future. Gentry et al. (2016) found in their qualitative study that research experiences allowed students to learn more about teaching processes and student learning. Similarly, participants in this study felt they could improve their teaching skills because they were reading about it for their research papers and they conducted research at their school practicum. It is quite similar to results mentioned earlier regarding the sense of empowerment noted in Katwijk et al.'s (2019) investigation, but in their case empowerment was detected mostly due to improved communication abilities.

The students in Demircioglu's (2008) study valued research experience because they appreciated knowledge on how to conduct research and write up a proper research paper (2008). Such perceptions did not emerge as themes and codes during data analysis and were not mentioned by the participants during the semi-structured interviews. It can be explained by the absence of a course dedicated to research methods in the education of pre-service teachers of English, Kazakh language and literature, Russian language and literature. Despite the fact that pre-service teachers of mathematics had a course which was an introductory course to research, they did not report a perceived appreciation of learning

about research methods. Given that learning about research methods, techniques was not emphasized, the *research-oriented* nature of education based on Healey and Jenkins's model is low or rather limited (2009).

Most of the participants see the benefits for them as teachers although none of them were explicitly told about the prospective benefits and role of research in teacher education. In fact, there is no clarity regarding the objectives of provided research activities and what outcomes are expected from students. Likewise, it is the issue that Puustinen, Santti, Koski and Tammi (2018) identified in their study when pre-service teachers found the role of research in their education as quite vague. Finnish scholars point out that some students of teacher programs even did not recognize it as a study element of the program (Puustinen et al., 2018). If the role and expected outcomes of research experience are unclear to students, then they might feel disoriented and dissatisfied with the program content. Therefore, this issue should not be overlooked by program coordinators and faculty members for possible program reconsiderations in the future.

Perceived Challenges in Research Experiences

According to the findings, pre-service teachers of English expressed reading and writing using academic English as one of the difficulties. Munthe and Rogne (2015) report similar findings in their study, although in their case all students, regardless of subject students are going to teach, had readings of recent research in English and writing sessions on academic English. It is argued that since most academic literature and the latest studies are in English students should be regularly provided with readings and writing lessons in English. One of the hindrances to more beneficial and positive research experiences is time consuming research projects (Demircioglu, 2008; Atmaca, 2017). Interestingly, this was not mentioned by any of the participants in the current study. It is possible that the research activities were well aligned with the learning load of other subjects in the curriculum.

Relationships with supervisors should be taken into consideration by faculty members, program coordinators and university administration as most of the participants felt a lack support from scientific supervisors. Gentry et al. (2016) emphasize the significance of trust relationships between professors and students as it is “integral for the commencement of any research based curricula” (p.67). In the present sample, students felt that there was an insufficient level of support from their supervisors, which resulted in poor relationships with them. Due to that students faced difficulties understanding the research tasks. Niemi and Nevgi (2014) had similar findings in their study of pre-service teachers’ research perceptions indicating insufficient support and incompetent supervision. The scientists argue that a research supervisor’s role is critical for better results of teacher education. Taking into account the findings and existing literature conclusions, it is argued that the supervising professor is an educator who should understand the professional development of teachers, what are the objectives criteria and pedagogical meaning of the research experience for better learning outcomes.

Another issue that made research engagement more challenging was the absence of choice for selecting research projects’ topics. In the present study, most students could not choose a topic themselves, they felt frustrated because the topics were not interesting for them. Similar findings were found in studies by Niemi and Nevgi (2014), Gentry et al. (2016), Katwijk et al. (2019) indicating that forbidding students to choose a topic lead to demotivation and negative learning experiences.

Having explored pre-service teachers’ perceptions of research engagement in one of higher education institutions of Kazakhstan, the findings were analyzed within the confines of posed research questions and in relation to previously addressed literature. The examined student perceptions indicate emphasized research-led and research-based engagement in research based on the conceptual framework of Healey and Jenkins (2009).

On one hand, research-based education is commonly present in teacher education as numerous programs require independent research conduction. On the other hand, the literature suggests that learning about current research as a research-led way of integration is mostly accompanied by research methods and skills learning, which was not the case in the current study (Agud & Ion, 2019; Afdal & Spernes, 2018; Munthe & Rogne, 2015). Yet, the perceived benefits of improved communication skills, enhanced subject knowledge and feeling more empowered are consistent with previous studies, as well as some of the challenges experiences such as relationships with supervisors, language hindrances and absence of selection of topics. Next chapter will delineate main conclusions, study limitations and implications for future research.

Chapter 6. Conclusion

In the previous section, I analyzed the findings, integrating them with the current literature in the field. In this section, the summary of research results will be presented in regards to the posed research questions. The current study aimed to explore how pre-service teachers perceive and experience engagement in research at their university. By unfolding results for this question, this chapter will also discuss students' research-related experiences, the perceived influence of research on pre-service teachers' professional development and challenges that they experience in research engagement at university. Limitations of this research will be delineated with consequent implications for future research in the field.

The qualitative research sought to explore pre-service teachers' perceptions on their engagements in research experiences. It was found that all four dimensions of Healey and Jenkins (2009) model are present in the current education of future teachers of mathematics, English, Russian language and literature, Kazakh language and literature. However, research-led and research-based ways of research integration are more emphasized. In other words, pre-service teachers' education was focused on learning about the current research in the field as well as on conducting independent student research. Yet, education of pre-service mathematics teachers did not emphasize learning about the recent and topical research in the field. Although conducting undergraduate research is manifested clearly in Kazakhstani teacher education programs, students experienced insufficient understanding of research concepts, methods of investigation and role of research in education generally.

The findings suggest that pre-service teachers perceive research positively for their professional development. In fact, the students perceived them as professionally transformative and empowering given that they felt more prepared for duties at school. It

was found that students were able to improve their subject specific knowledge by means of reading articles for classes, writing research papers and theses. Furthermore, another benefit to professional development was an enhanced level of communication skills. Pre-service teachers felt more confident in conversations with pupils and more competent when speaking with faculty members. The findings suggest that major perceived values of research engagement were improved subject knowledge, analytical skills, enhanced communication abilities and a higher capacity for creative thinking. Moreover, research experiences stimulated reflective practice on teaching and learning. However, some students felt they would not conduct research at their school work. In addition to that, it was found that pre-service teachers experienced a lack of resources in Kazakh and Russian languages, poor relationships with supervisors, language-related difficulties and an absence of a choice of topics for research projects as predicaments in their research experiences.

The research discussed in this paper is subject to some limitations. The sample of the study included only fourteen pre-service teachers from one university. Thus, the findings cannot be generalized to all undergraduate teacher programs across Kazakhstan. In terms of the sample, the research examined only pre-service teachers of mathematics, English, Kazakh and Russian subjects. In future studies, other subjects and primary school classroom teachers should be added to participant samples. As discovered, the students had differing ideas on the role and expected outcomes of research in their education. In this regard, further research on faculty members' perceptions and views on objectives of research should be investigated more thoroughly. Furthermore, the findings are confined to students' self-assessment and are constrained only to the pre-service period. Follow-up studies should investigate how recent graduates of teacher programs use their research capacities in the school settings as in-service teachers. Also, it is hoped that document analysis and in-depth interviews with university instructors could elucidate the reliability

and relevance of course literature and how research skills are developed in the classes. By addressing the aforementioned limitations, scholars can develop a more comprehensive view on undergraduate student research and its implications for future school teachers.

The current study's findings have contributed to the body of knowledge on education of future teachers. Taking into considerations the vital importance of teachers' work to the educational system and society in general, it was important to explore pre-service teachers' perceptions on their education, particularly on research experiences. Albeit the study possesses several limitations, the research presents several implications and recommendations for educational stakeholders.

Having studied the research-relation experiences and respective pre-service teachers' perceptions, it is recommended to enhance activities aimed at learning research methods and techniques. As students felt that explanations on what is research and how to do it was insufficient and vague, it is suggested to pay more attention to clear explanations of research by university instructors and supervisors in the classes or at individual supervising sessions. University administrators and program coordinators may introduce a course dedicated to research methods in order to provide better understanding of research for students. In order to improve student research experiences, it is suggested to take into account students' opinions in selection of research topics. By doing so, students can be more motivated, thus making their research experiences more rewarding. Drawing on the results of the study, it is also recommended to make use of practice-based research opportunities, working in close collaboration with schools as the future workplaces of graduates.

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Appendix A

Informed Consent Form

Exploring Pre-Service Teachers' Perceptions of Research Engagement in Bachelor Studies

DESCRIPTION: You are invited to participate in the study which aims to explore pre-service teachers' perception of research engagement at one university of Kazakhstan. In the process of the interview, you will be asked personal background questions and questions concerning your experience as a student of a teaching major. Our conversation will be recorded with your permission only. All the obtained data will be available only to the researcher and scientific supervisor. After two years following data analysis and submission of the thesis's final version, all interview related materials such as notes and audio recordings will be deleted. The results of the current paper will be used only for academic purposes.

TIME INVOLVEMENT: The interview duration will range between 30-40 minutes.

RISKS AND BENEFITS: This study does not entail any social, economic or physical harm. In order to minimize the risks, the researcher assures you with the confidentiality and anonymity of your responses. In the current study, your identity will not be revealed and the potential facts which might reveal your identity will not be associated with the research findings at any way. Participants' names will remain anonymous and will be replaced with pseudonyms to ensure participants' privacy and confidentiality. Furthermore, your university's name will not be revealed at any point of the study. Additionally, the university's specialty names that are unique and typical only to your university will be changed to broader titles.

The research will be especially beneficial to faculty members of teacher programs and of other fields since they can learn about research integration at university from students' perspective. In essence, this can be used in form of a feedback for program managers, instructors, faculty administration, and senior leadership members. It is hoped that by raising awareness of the aforementioned stakeholders certain changes can be made to enhance the quality of educational services at teacher programs. Furthermore, the participants of the study will have an opportunity to reflect on the research-related experience and to be heard. Besides the university stakeholders, school administration as future employers of pre-service teachers, can have a better understanding of the preparation the graduates had in order to use it to the benefit of the school and plan professional development arrangements accordingly. Finally, the obtained data of the study can profit policymakers by pointing out the areas for improvement. Your decision whether to participate or not in this research will have no influence on your position.

PARTICIPANT'S RIGHTS: If you have read this form and have decided to participate in this study, please understand that your participation is voluntary and you

have a right to withdraw your consent or discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled. The alternative is not to participate. You have the right to refuse to answer particular questions.

CONTACT INFORMATION:

Questions: If you have any questions, concerns or complaints about this research, its procedures, risks and benefits, contact the Master's Thesis Supervisor for this student work.

Independent Contact: If you are not satisfied with how this study is being conducted, or if you have any concerns, complaints, or general questions about the research or your rights as a participant, please contact the NUGSE Research Committee to at gse_researchcommittee@nu.edu.kz

Please, sign this consent form, if you agree to participate in this study.

· I have carefully read the information provided;
· I have been given full information regarding the purpose and procedures of the study;
· I understand how the data collected will be used, and that any confidential information will be seen only by the researchers and will not be revealed to anyone else;
· I understand that I am free to withdraw from the study at any time without giving a reason;

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

Signature: _____ Date: _____

The extra copy of this signed and dated consent form is for you to keep

Appendix B

Форма Информированного Согласия

Изучение восприятия научных исследований студентами педагогических специальностей на уровне бакалавриата

ОПИСАНИЕ: Вы приглашены принять участие в исследовании, целью которого является изучение восприятия будущими преподавателями участия в научных исследованиях в одном из университетов Казахстана. В процессе собеседования вам будут заданы личные вопросы и вопросы, касающиеся вашего опыта как студента преподавательской специальности. Наш разговор будет записан только с вашего разрешения. Все полученные данные будут доступны только исследователю и научному руководителю. Через два года после анализа данных и представления окончательной версии диссертации, все материалы, связанные с интервью, такие как заметки и аудиозаписи, будут удалены. Результаты настоящей работы будут использованы только в академических целях.

ВРЕМЯ УЧАСТИЯ: Интервью будет длиться от 30 до 40 минут.

РИСКИ И ПОЛЬЗА: Данное исследование не влечет за собой каких-либо социальных, экономических или физических последствий. Чтобы минимизировать риски, исследователь гарантирует вам конфиденциальность и анонимность ваших ответов. В текущем исследовании ваша личность не будет раскрыта, и потенциальные факты, которые могут раскрыть вашу личность, никоим образом не будут связаны с результатами исследования. Имена участников останутся анонимными и будут заменены псевдонимами для обеспечения конфиденциальности участников. Кроме того, название вашего университета не будет раскрыто ни на одном этапе исследования. Кроме того, названия специальностей университета, которые являются уникальными и типичными только для вашего университета, будут изменены на более широкие названия.

Исследование будет особенно полезно для преподавателей педагогических программ и других областей, так как они могут узнать об интеграции исследований в университете с точки зрения студентов. В целом, это может быть использовано в форме обратной связи для менеджеров программ, преподавателей, администрации факультета и старших руководителей. Мы надеемся, что путем повышения осведомленности вышеупомянутых заинтересованных сторон могут быть внесены определенные изменения в целях повышения качества образовательных услуг в рамках педагогических программ. Кроме того, участники исследования получат возможность поразмышлять над опытом, связанным с исследованиями, и быть услышанными. Помимо заинтересованных сторон университета, администрации школ, как будущие работодатели преподавателей до начала обучения, могут иметь лучшее представление о подготовке выпускников, чтобы использовать его на благо школы и планировать мероприятия по профессиональному развитию

соответственно. Наконец, полученные данные исследования могут принести пользу политикам, указав им области для улучшения педагогического образования. Ваше решение участвовать в этом исследовании никак не повлияет на ваше положение.

ПРАВА УЧАСТНИКА: Если вы прочитали эту форму и решили принять участие в данном исследовании, пожалуйста, примите во внимание, что ваше участие является добровольным и вы имеете право отозвать свое согласие или прекратить участие в любое время без каких бы то ни было наказаний или потери пользы от исследования. Альтернативой является не участвовать. Также вы имеете право отказаться отвечать на конкретные вопросы.

КОНТАКТНАЯ ИНФОРМАЦИЯ:

Вопросы: Если у вас есть какие-либо вопросы, проблемы или жалобы по поводу этого исследования, его процедур, рисков и пользы, обратитесь к руководителю магистерской диссертации для этой студенческой работы.

Независимый контакт: Если вы не удовлетворены тем, как проводится это исследование, или если у вас есть какие-либо проблемы, жалобы или общие вопросы по поводу исследования или ваших прав как участника, пожалуйста, свяжитесь с исследовательским Комитетом NUGSE по электронному адресу: gse_researchcommittee@nu.edu.kz

Пожалуйста, подпишите эту форму согласия, если вы согласны участвовать в данном исследовании.

· Я внимательно прочитал предоставленную информацию;
· Мне была предоставлена полная информация о целях и процедурах исследования;
· Я понимаю, как будут использоваться собранные данные, и что любая конфиденциальная информация будет видна только исследователям и не будет раскрыта никому другому;
· Я понимаю, что я свободен прекратить участие в исследовании в любое время без объяснения причин;

С полным знанием всего вышесказанного, я согласен, по своей собственной воле, принять участие в этом исследовании.

Подпись: _____ Дата: _____

Дополнительную копию этой подписанной и датированной формы согласия вы оставляете себе

Appendix C

Ақпараттық Келісім Нысаны

Бакалавриат деңгейінде педагогикалық мамандықтар студенттерінің ғылыми зерттеулерді қабылдауы

СИПАТТАМА: Біз сізді ғылыми зерттеуге қатысуға шақырамыз. Бұл зерттеудің мақсаты бір Қазақстандық университеттің педагогикалық мамандықтарының студенттердің ғылыми зерттеулерге қатысуына қатысты қабылдауды зерттеу болып табылады. Әңгімелесу барысында сізге мұғалім мамандығының студенті ретінде сіздің тәжірибеңізге қатысты жеке сұрақтар мен сұрақтар қойылады. Біздің әңгіме тек сіздің рұқсатыңызбен жазыла алады. Барлық алынған деректер тек зерттеуші мен ғылыми жетекшіге қол жетімді болады. Деректерді талдаудан және диссертацияның соңғы нұсқасын тапсырғаннан екі жылдан соң, сұхбатқа байланысты жазбалар мен аудиожазбалар сияқты барлық материалдар жойылады. Осы жұмыстың нәтижелері тек академиялық мақсатта пайдаланылатын болады.

ӨТКІЗІЛЕТІН УАҚЫТЫ: Сұхбат 30- 40 минутқа дейін созылады.

ТӘУЕКЕЛДЕР МЕН АРТЫҚШЫЛЫҚТАРЫ: Бұл зерттеу қандай да бір әлеуметтік, экономикалық немесе физикалық салдарларға әкеп соқпайды. Тәуекелдерді азайту үшін зерттеуші сізге жауаптардың құпиялылығы мен анонимдігіне кепілдік береді. Бұл зерттеуде сіздің жеке басыңыз ашылмайды және сіздің жеке басыңызды аша алатын әлеуетті фактілер зерттеу нәтижелерімен байланыстырылмайды. Қатысушылардың аттары жасырын болып қалады және қатысушылардың құпиялылығын қамтамасыз ету үшін бүркеншік аттармен ауыстырылады. Сонымен қатар, сіздің университетіңіздің атауы зерттеудің бірде-бір кезеңінде ашылмайды. Сонымен қатар, университет мамандықтары тек сіздің университетіңіз үшін бірегей және типтік болып табылатын болса, атаулар кең атауларға өзгертіледі.

Зерттеу педагогикалық бағдарламалары мен басқа да салалардың оқытушылары үшін пайдалы болады, өйткені олар студенттер тұрғысынан университетте зерттеулердің интеграциясы туралы біле алады. Жалпы, бұл бағдарлама менеджерлері, оқытушылар, факультет әкімшілігі және университет көшбасшылары үшін кері байланыс түрінде қолданылуы мүмкін. Біз жоғарыда аталған мүдделі тараптардың хабардарлығын арттыру арқылы педагогикалық бағдарламалар шеңберінде білім беру қызметтерінің сапасын арттыру мақсатында белгілі бір өзгерістер енгізілуі мүмкін деп үміттенеміз. Сонымен қатар, зерттеуге қатысушылар зерттеулермен байланысты тәжірибемен танысып, естуге мүмкіндік алады. Университеттің мүдделі тараптарынан, мектеп әкімшілігінен басқа, болашақ оқытушылардың жұмыс берушілері ретінде оқуды бастағанға дейін мектеп

бітірушілерді дайындау туралы жақсы түсінікке ие бола алады. Ақырында, алынған зерттеулер педагогикалық білімді жақсарту үшін облыстарды көрсетіп, саясаткерлерге пайда әкелуі мүмкін. Бұл зерттеуге қатысуға қатысты шешіміңіз сіздің жағдайыңызға әсер етпейді.

ҚАТЫСУШЫНЫҢ ҚҰҚЫҚТАРЫ: Егер сіз осы нысанды оқып, осы зерттеуге қатысуды шешсеңіз, сіздің қатысуыңыз ерікті болып табылатындығын және сіздің келісіміңізді қайтарып алуға немесе кез келген уақытта қандай да бір айыппұлсыз немесе зерттеулерден пайдасын жоғалтпай қатысуды тоқтатуға құқығыңыз бар екенін ескеруіңізді өтінеміз.Баламасы қатыспау. Сіз нақты сұрақтарға жауап беруден бас тартуға құқылысыз.

БАЙЛАНЫС АҚПАРАТЫ:

Сұрақтар: Егер сізде осы зерттеу, оның процедуралары, тәуекелдері мен пайдасы жөнінде қандай да бір сұрақтар, мәселелер немесе шағымдар болса, осы студенттік жұмыс үшін магистрлік диссертацияның жетекшісіне хабарласыңыз.

Тәуелсіз байланыс: Егер сіз осы зерттеудің қалай жүргізілетініне қанағаттанбасаңыз немесе зерттеу немесе қатысушы ретінде сіздің құқықтарыңыз туралы қандай да бір мәселелер, шағымдар немесе жалпы сұрақтар бар болса, NUGSE зерттеу комитетімен электрондық мекен-жайға хабарласыңыз: gse_researchcommittee@nu.edu.kz

Егер сіз осы зерттеуге қатысуға келіссеңіз, осы келісім формасына қол қойуңызды өтінеміз.

- Мен берілген ақпаратты мұқият оқыдым;
- Маған зерттеудің мақсаттары мен рәсімдері туралы толық ақпарат берілді;
- Мен жиналған деректердің қалай пайдаланылатынын және кез келген құпия ақпараттың тек зерттеушілерге ғана көрінетінін және ешкімге ашылмайтынын түсінемін;
- Мен себептерін түсіндірмей кез келген уақытта зерттеуге қатысуды тоқтатуға еркін екенін түсінемін;

Жоғарыда айтылғандарды толық білетініммен, мен өз еркіммен осы зерттеуге қатысуға келісемін.

Қолы: _____ Күні: _____

Осы қол қойылған және белгіленген келісім нысанының қосымша көшірмесін өзіңізге қалдырасыз

Appendix D

Interview Protocol

Exploring Pre-Service Teachers' Perceptions of Research Engagement in Bachelor Studies

Date:

Place:

Time of the interview:

Duration:

Interviewee's specialty:

Description of the research:

The interview is conducted to gather data for the current research project which aims to explore pre-service teachers' perception of research engagement at one university Kazakhstan. I believe this study will be especially beneficial to faculty members of teacher programs and of other fields since they can learn about research integration at university from students' perspective. It is hoped that findings of the research will be used to improve the bachelor teacher programs by program managers, instructors, faculty administration, and senior leadership members. Do you mind recording our conversation? Please be assured that the responses you provide and the recording will be kept confidential and used only for research purposes. Your personal data including the name of your university will not be revealed at any stage of the study. The interview will take 30-40 minutes. Your participation is voluntary, you may stop the interview at any time, refuse to answer any of the questions if you feel uncomfortable, as we do not intend to inflict any harm. Please read and sign the consent form if you want to take part in the study. Thank you for your agreeing to participate. Do you have any questions regarding the interview before we start?

Testing a recorder.

Questions:

- Can you tell me about yourself please? What is your field of study? Can you please tell about and describe your study period at University A?
- Could you share what has been your experience of engagement in research since you started your bachelor program?
- What experience have you got of conducting your own research during your bachelor studies? How did you do it?
- How do you understand the term research skills?
- What are the current research developments in your field (teaching English/Russian/Kazakh language/mathematics)? How did you learn about them?

- What are the research interests of your professors? How did you learn about their research interests?
- What scientific articles have you read or learned about/read during studies? How were you introduced to these articles?
- In your opinion, in what ways did your research experience affect your professional skills?
- Why do you think you have research experiences at university?
- What difficulties did you face in your research experiences?
- What recommendations would you suggest for university administration and instructors on research activities and experiences?
- Before we conclude this interview, is there something about your experience that we have not yet had a chance to discuss? Do you have anything more you want to bring up or ask about before we finish the interview?

Thank you for your participation!

Appendix E

Интервью Протокол

Изучение восприятия научных исследований студентами педагогических специальностей на уровне бакалавриата

Дата:

Место:

Время проведения собеседования:

Продолжительность:

Специальность интервьюируемого:

Описание исследования:

Интервью проводится с целью сбора данных для текущего исследовательского проекта, целью которого является изучение восприятия студентами педагогических специальностей участия в научных исследованиях в одном университете Казахстана. Я считаю, что это исследование будет особенно полезно для преподавателей педагогических программ и других областей, поскольку они могут узнать об интеграции исследований в университете с точки зрения студентов. Я надеюсь, что результаты исследования будут использованы для улучшения педагогических программ бакалавриата менеджерами программ, преподавателями, представителями администрации и членами высшего руководства университета. Вы не против, если я буду записывать наш разговор? Вы можете быть уверены, что ответы, которые вы предоставляете и запись интервью будут храниться в тайне и использоваться только в исследовательских целях. Ваши персональные данные, включая название учебного заведения, в котором вы учитесь, не будут раскрыты ни на одном из этапов исследования. Интервью займет около 30-40 минут. Ваше участие является добровольным и вы можете прекратить интервью в любое время. Более того, вы вправе отказаться отвечать на любые вопросы интервью, если чувствуете себя некомфортно, так как мы не хотим причинить вреда каким-либо образом. Пожалуйста, прочтите и подпишите форму согласия, если вы хотите принять участие в исследовании. Спасибо, что согласились принять участие. У вас есть какие-нибудь вопросы относительно интервью, прежде чем мы начнем?

Тестирование диктофона

Вопросы:

- Не могли бы вы пожалуйста рассказать мне немного о себе? Какую специальность вы изучаете? Не могли бы вы рассказать и описать свой период обучения в Университете А?
- Не могли бы вы поделиться своим опытом участия в исследованиях с тех пор, как вы начали свою бакалаврскую программу?
- Расскажите пожалуйста о вашем опыте проведения собственных исследований во время учебы в университете? Как вы его проводили?
- Как вы понимаете термин ‘исследовательские навыки’?
- Каковы текущие научные разработки в вашей области (преподавание английского/русского/казахского языка/математики)? Как именно вы узнавали о них?
- Каковы научные интересы ваших профессоров? Как вы узнали об их научных интересах?
- Какие научные статьи вы читали во время учебы? Как вы узнавали об этих статьях?
- По вашему мнению, каким образом ваш исследовательский опыт повлиял на ваши профессиональные навыки?
- Как вы думаете, почему у вас есть исследовательский опыт в университете?
- С какими трудностями вы столкнулись в своих исследованиях?
- Какие рекомендации вы могли бы предложить руководству университета и преподавателям по вопросам исследовательской деятельности в вашем обучении?
- Прежде чем мы закончим это интервью, есть ли что-то в вашем опыте, что мы еще не имели возможности обсудить? У вас есть еще что-нибудь, о чем вы хотели бы поговорить или спросить, прежде чем мы закончим интервью?

Спасибо вам за Ваше участие!

Appendix F

Сұхбат Хаттама

Бакалавриат деңгейінде педагогикалық мамандықтар студенттерінің ғылыми зерттеулерді қабылдауы

Күні:

Орын:

Сұхбат өткізу уақыты:

Ұзақтығы:

Сұхбаттасушының мамандығы:

Зерттеудің сипаттамасы:

Сұхбат зерттеу жобасы үшін мәліметтер жинау мақсатында жүргізіледі, оның мақсаты- бір Қазақстандық университеттің педагогикалық мамандықтарының студенттердің ғылыми зерттеулерге қатысуына қатысты қабылдауды зерттеу болып табылады. Менің ойымша, бұл зерттеу педагогикалық бағдарламалары мен басқа да салалардың оқытушылары үшін пайдалы болады, өйткені олар студенттер тұрғысынан университетте зерттеулердің интеграциясы туралы біле алады. Зерттеу нәтижелері бакалавриат бағдарламаларының жақсарту үшін университет оқытушылары, бағдарлама менеджерлері, факультеттер әкімшілігі және университеттің жоғары басшылығының мүшелерімен тиімді пайдаланылады деп үміттенемін. Біздің әңгіметіміз диктофонға жазылатын болады, егер сіз қарсы болмасаңыз? Сіз берген жауаптарыңыз және әңгіменің жазбасы құпия сақталады және тек зерттеу мақсатында қолданылатынына сенімді бола аласыз. Сіздің жеке мәліметтеріңіз, сіз оқыған университеттің атауын қоса алғанда, зерттеудің бірде-бір кезеңінде айтылмайды. Сұхбат 30-40 минут алады. Сіздің қатысуыңыз ерікті болып табылады және сіз кез келген уақытта сұхбатты тоқтата аласыз. Сонымен қатар, егер өзіңізді ыңғайсыз сезінсеңіз, сұхбаттың кез келген сұрақтарына жауап беруден бас тартуға құқығыңыз бар, себебі біз сізге қандай да бір жолмен зиян келтіргіміз келмейді. Келісім нысаны оқып шығуыңызды және қол қоюыңызды сұраймыз. Қатысуға келіскеніңіз үшін рахмет. Біз бастамас бұрын сіз сұхбатқа қатысты қандай да бір сұрақтарыңыз бар ма?

Диктофонды тестілеу

Сұрақтар:

- Өзіңіз туралы біраз айтып бере аласыз ба? Қандай мамандықты меңгеріп жатырсыз? Сіз А университетінде оқуыңыз туралы айтып, сипаттай жібересіз бе?
- Сіз бакалавр бағдарламасын бастағаннан бері сіздің зерттеулерге қатысу тәжірибесімен бөлісе аласыз ба?
- Университетте оқу кезінде өз жеке зерттеулеріңізді жүргізу тәжірибеңіз туралы айтып берсеңіз? Сіз оны қалай өткіздіңіз?
- Зерттеу дағдылары терминін қалай түсінесіз?
- Сіздің салаңыздағы ғылыми әзірлемелер қандай (ағылшын/орыс/қазақ тілі/математиканы оқыту)? Олар туралы қалай білдіңіз?
- Сіздің профессорларыңыздың ғылыми қызығушылықтары қандай? Сіз бұл туралы қалай білдіңіз?
- Оқу кезінде қандай ғылыми мақалалар оқыдыңыз? Бұл мақалалар туралы қалай білдіңіз?
- Сіздің ойыңызша, сіздің зерттеу тәжірибеңіз сіздің кәсіби дағдыларыңызға қалай әсер етті?
- Сіздің оқуыңызда неге зерттеу тәжірибелері бар деп ойлайсыз?
- Сіз өз зерттеулеріңізде қандай қиындықтарға тап болдыңыз?
- Сіздің оқуыңызда зерттеу жұмысы мәселелері бойынша университет басшылығы мен оқытушыларға қандай ұсыныстар беретін едіз?
- Біз бұл сұхбатты аяқтамас бұрын, сіздің зерттеу тәжірибеңіз жайлы тағы да айтарыңыз бар ма? Сіздің сұхбаттқа қатысты сұрақтырыңыз бар ма?

Сіздің қатысуыңыз үшін рахмет!