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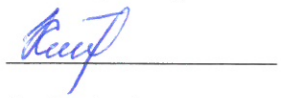

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The relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction: A case study of a school in Kazakhstan

Aliya Kurmanova

Submitted in partial fulfillment of the requirements for the degree of

Master of Science

in

Educational Leadership

Nazarbayev University Graduate School of Education

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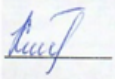

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The relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction: A case study of a school in Kazakhstan

Abstract

This explanatory sequential mixed methods instrumental case study explored the connection between teachers' self-efficacy, beliefs and practice of differentiated instruction in one school in Kazakhstan. In response to new curriculum demands, teachers at the research site have begun using differentiated instruction. The purpose of the study was to identify teachers' self-efficacy in regards to their willingness to use differentiated instruction in their classrooms, and their perception and practices of differentiated instruction. The quantitative component of this case study allowed the researcher to use a self-assessment survey to identify participants' degree of perceived and differentiated instruction self-efficacy. Their perception and practice of differentiated instruction was qualitatively explored through semi-structured interviews, lesson observations and documents analysis.

The study has revealed that most participants feel quite confident in their ability to perform new tasks and not allow challenges to discourage them. Also, the majority of participants showed high self-efficacy in their knowledge of differentiated instruction. However, findings showed that teachers' high self-efficacy in differentiated instruction was not reflected in their practice. Furthermore, research showed that participants had varied perceptions of differentiated instruction. Some teachers understand it as a way to build a learning opportunity to meet the needs of their students. Others saw it as an ability-based approach to meet the requirements of new curriculum.

Overall teachers agreed that there was a connection between their confidence in performing new tasks and their willingness to employ differentiated instruction.

The research findings can benefit teachers' understanding of how self-efficacy can influence their readiness to use innovative teaching methods, including differentiated instruction. Also, the results of the study will be most beneficial to teachers as they can learn about their own practice reading this research. The study indicates the importance for school administration to encourage professional communities to help expand teachers' perceptions of differentiated instruction.

Қазақстан мектептеріндегі пән мұғалімдерінің өзіндік тиімділігі және саралап оқыту бойынша түсініктері мен тәжірибелері арасындағы байланыс

Аңдатпа

Берілген жүйелі түсіндірмелі аралас әдісті тақырыптық зерттеуде Қазақстан мектептерінің біріндегі пән мұғалімдерінің өзіндік тиімділігі және саралап оқыту бойынша түсініктері мен тәжірибелері арасындағы байланыстар зерттелген. Саралап оқыту ғылым алаңында қолданатын оқытушылардың жаңа оқыту бағдарламасының талаптарына сай оқыту стратегияларының бірі болды.

Зерттеудің мақсаты мұғалімдердің сыныптарында саралап оқытуды қолдануға көзқарастары мен дайындықтарын, өзіндік тиімділігі мен тәжірибелерін анықтау болды. Түсіндірмелі аралас әдістердің сандық бөлігі ұстаздардың өзін-өзі бағалауының өзіндік тиімділігі мен қабылдау дәрежесін анықтау үшін өзін-өзі бағалауды жүргізуге мүмкіндік берді, ал зерттеудің сапалық әдіс бөлігінде жартылай құрылымдалған сұхбаттар, сабақтар мен құжаттарды талдау арқылы мұғалімдердің саралап оқытуды қабылдағаны көрініс тапты.

Зерттеу барысында қатысушылардың көпшілігі өздерінің жаңа міндеттерді орындауға қабілетті екендіктерін, кездескен жаңа қиындықтар оларға кедергі болмайтынын көрсетті. Сондай-ақ, мұғалімдірдің көпшілігі саралап оқыту туралы білімдерінде өздерінің жоғары тиімділігін көрсетті. Алайда, қорытынды барысында мұғалімдердің саралап оқытуға қатысты өздеріне деген тым жоғары сенімі олардың тәжірибесінде көрініс таппағаны анықталды. Әрі қарай, зерттеу жұмысы қатысушылардың саралап оқытуды әртүрлі түсінетіндерін анықтады. Кейбір мұғалімдер саралап оқытуды өз сыныптарындағы әрбір оқушының қажеттіліктерін қанағаттандыруға негізделген оқу мүмкіндігін қалыптастыру тәсілі деп түсінсе,

басқалары оны жаңа оқу бағдарламасының талаптарын қанағаттандыруға бағытталған қабілетті көзқарас ретінде қарастырады екен. Мұғалімдердің бірі саралап оқытудың кейбір элементтерінің тиімділігіне қатысты алаңдаушылығын білдірді, мысалы, жаңа оқыту әдістерінде бағалауға сақтықпен қараудың керектігін ескертті. Сонымен қатар, зерттеуге қатысушылар мұғалімдердің өзіне деген сенімділігі мен жаңа тапсырмаларды орындауға дайындықтары арасында байланыс бар екеніне толықтай келісті.

Зерттеу нәтижелері мұғалімдердің өзіндік тиімділігі олардың саралап оқыту сияқты инновациялық оқыту әдістерін қолдануға деген ниеттеріне қалай әсер ететіндіктерін түсінуге ықпал етеді. Сондай-ақ, зерттеу алаңында мұғалімдер саралап оқытудың негізгі компоненттерін қалай жақсы саралау керектігін үйренді. Сонымен қатар, зерттеу нәтижелері мектептің әкімшілігі тарапынан мұғалімдердің саралап оқыту бойынша түсініктері мен қабылдауларын кеңейту үшін кәсіби қауымдастық құрып, саралап оқытуды мұғалімдерге кеңірек түсіндіруге, тәжірибе алмасуға жағдай жасауға мүмкіндік туғызуына ықпал етеді.

Взаимосвязь между самоэффективностью учителей, убеждениями и практикой дифференцированного обучения: кейс-стади школы в Казахстане

Аннотация

В данном тематическом исследовании была изучена связь между самоэффективностью учителей, убеждениями и практикой дифференцированного обучения в одной из школ Казахстана. Применение дифференцированного обучения участниками исследования в своей практике является эффективной стратегией необходимой в соответствии с требованиями обновленного обучения внедряемого в средних школах Казахстана. Целью исследования было выявление связи между самоэффективностью учителей и их желанием применять дифференцированное обучение в своей практике, а также понимание сущности дифференцированного обучения. В одной из школ Казахстана было проведено смешанное инструментальное тематическое исследование через метод кейс-стади (ситуационный анализ) с образцом из 6 учителей.

Самооценочный опрос был использован для определения степени личной и дифференцированной самооценки обучения участников. Восприятие и практика дифференцированного обучения среди участников исследования было качественно изучено с помощью полуструктурированных интервью, наблюдений уроков, а также анализа документов.

Согласно результатам исследования, большинство участников чувствуют себя достаточно уверенно в своей способности выполнять новые задачи и не отступают перед сложностями. Кроме того, большинство участников высоко оценили свою способность дифференцировать обучение. Также результаты исследования показали, что участники имели различные представления о дифференцированном

обучении. Некоторые учителя рассматривали метод дифференцированного обучения как способ создать учебную возможность для удовлетворения потребностей всех своих учеников, но другие участники исследованиия ассоциировали дифференцированный подход с уровневым обучением. Такого рода несовпадения отразились на практике учителей. Например, наблюдения уроков выявили, что методы обучения используемые учителями не всегда содержали дифференцированные задания, отвечающие уровню готовности учеников. Анализ документов выявил что многие учителя не считают необходимым включать дифференциацию обучения в планы уроков. В целом учителя согласились с тем, что существует связь между их уверенностью в своих способностях выполнять новые задачи и их готовностью применять дифференцированное обучение в своей практике.

Результаты исследования могут помочь учителям понять, как самоэффективность может влиять на их готовность использовать инновационные методы обучения, такие как дифференцированное обучение. Кроме того, участники исследования научились эффективно распознавать основные компоненты дифференцированного обучения. Также, результаты исследования помогут администрации школы создать профессиональные сообщества с целью более эффективного распространения свое восприятие и восприятие обучения учителей, позволяя учителям расширять свое понимание и делиться опытом

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Chapter 1: Introduction

1.1 Introduction

For educators an ideal classroom to raise learners' performance should be the one where every single student is engaged, shows understanding of the course, achieves only the high grades and feels comfortable. However, situations in actual classrooms may not demonstrate such an optimistic picture. To illustrate, Tomlinson (2005), who is one of the most prominent researchers and authors in the field of differentiated instruction, describes her own unfortunate experience of being a student who faced difficulties with understanding mathematics and how little was done from the Math teacher's side to try to find an individual approach to her. In fact, Tomlinson's degree of confidence decreased dramatically to such a level that when an English language teacher attempted to give her more differentiated task, she was not able to accept it. According to the author, "the sense of stupidity I developed in math could not be cancelled out so easily" and "one-size-fits-all" approach that math teacher was implementing diminished her overall level of confidence and made her doubt her capability to master the subject (p.13).

The issue of students' inconsistent academic progress has received considerable critical attention in academic research. For example, Tomlinson (1999) stresses an importance of "developing academically responsive class" (p.12). Also, she shares her uncertainties in terms of whether all the students "… learn the same thing, in the same ways, over the same time span" (p.12).

One of the other reasons of students' low academic performance can be educators' failure to consider a learning style as a necessary component of an effective learning environment. According to Morgan (2014), students often lose focus and interest in lesson and consequently feel academically frustrated when teachers do not consider pupils'

learning styles. Consequently, students' attitude and desire to learn may dramatically decrease. He also presents a way for how to avoid such situation, which could be a differentiated instruction as it "… can alleviate or eliminate this disengagement" (p.34).

As it can be noted, differentiated instruction has been mentioned in studies as a possible way to increase all students' capacity to be engaged in the classroom, provide them with a chance not to fall behind and achieve a good academic performance (Alavinia & Farhady, 2012; Algozzine & Anderson, 2007; Pham, 2012).

When it comes to defining what differentiated instruction is, most of the studies indicate similar important concepts. For example, for Morgan (2014) "Differentiated instruction is a way of recognizing and teaching according to different student talents and learning styles" (p.34). Meanwhile, Theisen (2002) states that differentiated instruction is "a philosophy of teaching and learning which recognizes that each learner is unique. …. differentiated instruction is a response to that uniqueness" (p.2). Theisen (2002) emphasizes that in differentiated classroom all learners might not be doing the same activities simultaneously.

As it can be seen, the key words that seem to best describe the differentiated instruction could be the following: teaching differently, diversity, and teaching according to learning styles. In other words, when there might be a need for an approach which considers students' needs, their different academic backgrounds and learning styles, it is when a differentiated classroom should be built. Hence, creating differentiated classrooms can be an answer to questions asked in the beginning, i.e., what might have been affecting students' low academic performance and what the possible ways for dealing with this issue could be.

However, some teachers may feel uncertain about whether implementation of differentiated instruction would be a solution and have questions, such as "Is it worth the bother to differentiate instruction in the classroom?" (Tomlinson,2005, p.13). In her study, Tomlinson (2005) emphasizes the importance of implementing differentiated instruction as it impacts the students' success in their lives and helps them feel more confident.

Nonetheless, not all teachers feel comfortable or ready to employ differentiated instruction in their practices. According to Mills et al. (2014), one of the reasons why the differentiated instruction is not being implemented at school at an appropriate level can be teachers' misunderstanding of the concept of the differentiated instruction per se, as it happened in one of the schools in Australia. For example, since "…they (teachers) felt uncertain about what was expected of them in relation to differentiation" (p.339) teacher's grouping of students was not effective enough for successful inclusion of each and every student in her class. Consequently, while the teacher was paying more attention to under-performing students, her high achievers were left unattended. Neither of two other types of groupings the teacher tried to implement, mixed-ability and friendship groups succeeded. On top of that, writing individualized learning plans for every student and assessment issue added to teachers' confusions in relation with the differentiated instruction. As each educator had more than 20 students in class on average, writing a lesson plan for every single learner seemed impossible and time-consuming. Moreover, other teachers at that school felt uncertain regarding differentiated assessment. In other words, teachers were not familiar with how to create different assessment tasks for every student.

Thus, one of the possible challenges for teachers in regards with implementation of differentiated instruction in their practice could be related to their level of overall perceived self-efficacy. Put it that way, the success of differentiated instruction strategy may depend on the teachers' confidence in their professional capacity to perform a new

technique. Research supports such hypothesis. For example, Starko and Schack (1989) confirm teachers' unwillingness to implement differentiated instruction in their classrooms could be a lack of confidence or self-efficacy in their own abilities to successfully perform this strategy. In other words, teachers may be more inclined to do the activity they feel safer about and less likely to try something uncertain. According to Bandura (2006), people tend to be more inclined to face difficulties "as challenges rather than as threats to be avoided" when they are certain about their abilities (p.1). He further states that others, who apprehend new areas and tasks, mostly try to hide form difficulties and consequently might not be successful in their performance. Dixon, Yssel, McConnel, and Hardin (2014) confirm Bandura's findings. They see educators' lack of belief in their professional capacity, i.e. mismatch between what they know about the differentiated instruction and whether they are knowledgeable enough to implement it, as a plausible theory of their reluctance in implementation differentiated instruction.

As a result, teachers feel more confident towards implementing differentiated instruction when they have some professional background, i.e. participation in workshops or development courses where they could see some examples from other teachers' practices. Taking into account these research findings, there can be a probability that the lack of self-efficacy might affect teachers' willingness or readiness to implement differentiated instruction in their classrooms.

1.2. Statement of the problem

Research suggests that teachers may have been facing challenges with understanding the nature of differentiated instruction. The factors, such as misunderstanding of the concept of differentiated instruction, lack of self-efficacy, and insufficient knowledge of what particular methods should be used to build responsive and

diverse classrooms, could be the reasons of educators' doubts in the effectiveness of implementation of differentiated instruction.

As to the Kazakhstani context, there has been relatively little research on implementation of differentiated instruction in Kazakhstani schools. Some studies were focused on the impact of the differentiated instruction on students' overall academic performance or experiences of teachers in terms of sharing practices and methods (Abildayeva, 2010; Karabutova &Tukenova, 2017). Kirdina (2012) found that differentiated instruction may play a positive role in assessment.

According to Sarzhanova and Kvasnih (2012) the implementation of differentiated instruction in the Kazakhstani educational system has proved the effectiveness of the strategy to improve reading skills of first graders.

However, OECD (2015) affirms that in pursuit of high learning outcomes, for example encouraging top-achieving students to participate in academic "Olympiads", educators' community may risk leaving low-achieving students with less attention. Consequently, low-achieving students might lack chances to receive an equal access to essential knowledge and skills. Also, the OECD (2015) report states that schools tend to group students predominantly by abilities, and do not take into account pupils' learning styles and interests.

Such arguable findings definitely call for deep and thorough investigation in this area. Moreover, further research on teachers' beliefs and practices of differentiated instruction might help to contribute to building a more complete understanding of how the differentiated instruction is being implemented in Kazakhstan's schools and what factors may cause challenges for educators.

1.3. Purpose of the study

The purpose of this study is investigating STEM and Humanities teachers' beliefs and practices of differentiated instruction have a number of reasons.

Firstly, it is informative to investigate whether there could be a connection between the teachers' self-efficacy and their beliefs in relation to differentiated instruction. Also, the way teachers differentiate content, curriculum, and instruction will reveal how they understand the concept of differentiated instruction. Another important point could be related to assessment. For example, when teachers assess educators may receive information in regards to how differentiated instruction affects students' performance. The methods educators use in their classrooms will inform on their practices of implementing differentiated instruction. Additionally, this study will be beneficial for teachers to understand how they define, perceive and implement differentiated instruction in their classrooms. Finally, the research findings will be important for educators to be able to see if their level of confidence impacts their desire to use differentiated instruction in their practice.

Therefore, the purpose of this study is to explore an association between STEM and Humanities teachers' self –efficacy self-assessment, beliefs of differentiated instruction, and their practices of differentiated instruction.

1.4. Research questions:

Main research question:

How is STEM and Humanities teachers' self-efficacy self-assessment related to their beliefs of differentiated instruction and practices of differentiated instruction?

Sub-questions:

1. What is the association between teacher's self-efficacy and their beliefs of differentiated instruction?

2. How does teachers' self-efficacy affect their willingness to employ differentiated instruction?

3. How do teachers define differentiated instruction?

4. How do teachers understand the diversity of learners in their classrooms?

5. How do teachers provide differentiation of content, process, product and assessment in a way that the needs of all students in the classroom have been met?

6. How do teachers design and include differentiation in their lesson plans to meet the goals of differentiation?

7. What methods and approaches do teachers use to differentiate the instruction?

In order to answer these research questions, an instrumental case study of a school in central Kazakhstan was selected as a research design to study the phenomenon at the research site.

1.5. Significance of the study

The current research may contribute to teachers' understanding of how their level of confidence may influence their willingness to implement innovative teaching strategies in their classrooms in general and differentiated instruction in particular. Also, educators will learn about how they see and understand differentiated instruction. Moreover, teachers will be informed of how they employ the main components of differentiated instruction in their teaching and learning process. In addition, the study will be beneficial for improving implementation of differentiated instruction at the research site. Thus, the research will be

primarily beneficial for teachers in better understanding of the concept of differentiation and the relation between self-efficacy and teachers' beliefs.

1.6. Definition of central concepts

The concept of self-efficacy is best explained in Bandura's study (1982). He describes self-efficacy as "how people judge their capabilities and how, through their self-percepts of efficacy, they affect their motivation and behavior" (p.122).

Several studies have attempted to explain the concept of differentiated instruction. For example, Tomlinson (2000) defines differentiated instruction as the environment where teachers strive to present a strong curriculum for all students but adapt it based on every student's interests and needs. Hall (2002) notes that educators should be flexible "… their approach to teaching and adjusting the curriculum and presentation of information to learners…" (p.1).

Tomlinson (2014), one of the most prominent experts in the area of differentiated instruction states that teacher modifying content, process, product and assessment based on students' readiness, interest and learning profile creates a classroom where the needs of every students has been met. She further explains content as what teachers want their students to learn from the standard; process- how teachers differentiate their instruction; product is what students have learned and are able to demonstrate; and assessment is explained as a process that defines what level students have achieved based on the main results of their learning (Tomlinson & Imbeau, 2010).

The next chapter will review the existing theories and concepts of self-efficacy and its impact on teachers' willingness to implement new instructional approaches in their practices. Also it will review studies in relation to teachers' perception and practices of differentiated instruction.

Chapter 2. Literature review

2.1. The concept of self-efficacy

Bandura (2006), who is one of the well-known experts in the studies of self-efficacy, defines self-efficacy as a belief that people possess to produce specific tasks. He further explains the behavior of people with a strong sense of self-efficacy in contrast with people lacking this trait. In his explanation, people having a high sense of confidence tend to accept difficulties as "challenges to be mastered" (p.2) and do not quit when the situations become intense. On the other hand, individuals who do not share such a high self-efficacy incline to doubt their abilities to perform the tasks successfully and see the difficulties as threats. Bandura (2006) underlines that self-efficacy defines people's behavior under certain circumstances or in specific situations, which goes in line with the theory of Maibach and Murphy (1995). The latter argue that concepts such as self-esteem, self-confidence and locus of control are more of personal characteristics whereas self-efficacy is born when the situation seems to be challenging.

This goes in line with Bandura's (2006) findings. According to Bandura's theory of self-efficacy, those who are confident in their abilities perceive difficult tasks as challenges rather than a problem. They do not allow failures to discourage them and rather see critical situations as a test to their capabilities and skills. In contrast, people who have doubts in their abilities to face a problem with success try to avoid threatening situations. Bandura (2006) presents four sources of self-efficacy: mastery experiences, vicarious experience, social persuasion and psychological experience.

The first source, mastery experiences, is related to a fact that when one has developed a strong self-efficacy, failures will not impact the level of personal confidence significantly. However, if failure happens before one has been fortunate enough to

succeed, it may negatively affect their sense of confidence. The second source of self-efficacy, vicarious experience, occurs when people see others performing successfully in a specific situation. In other words, people's confidence rises when they begin to believe in their own capabilities. Social persuasion, the third source of self-efficacy, is often found as the easiest one. The reason is that when assuring people verbally that they are able to perform designated activities, they are highly likely to make more effort towards the implementation of the task. Nevertheless, Bandura (1994) warns that such kind of self-efficacy should not be used often due to its short-term effect. The fourth way of self-efficacy is related to people judging their ability to fulfill the task by how they react to stress as it may have a negative influence on confidence level. Therefore, it needs to be underlined that self-efficacy theory states that when people believe in their abilities, it is a significant sign of how they are going to perform, behave and feel when facing new challenges or performing new tasks.

2.2. Teachers' self-efficacy in regards to their beliefs in differentiated instruction

Some studies claim that teachers' self-efficacy and their beliefs in differentiated instruction could be related. That is to say, it is highly likely that some teachers might not feel comfortable to implement differentiated instruction in their practice as they lack confidence in understanding the nature of differentiated instruction (Dixon et al., 2014; Zheng, Yin, & Li, 2018).

De Neve, Devos and Tuytens (2015) arrive to a similar conclusion that the more teachers believe in their abilities to perform an effective differentiated instruction, the more flexible they are in adaptation of their methods. In other words, educators' personal self-efficacy appears to be related to the growth of their teaching mastery. Bandura (1994) also emphasizes the significance of self –efficacy in the field of education. He explains that it is

vital to develop children's cognitive skills in the years of formative period. That is to say, only teachers who have a high self-efficacy about their teaching skills can motivate children and support their cognitive development.

Overall, it is clear that a concept of self – efficacy might in many ways influence human's willingness to perform a designated activity or their belief in regards to a certain area. More importantly, for educators who often face new challenges in their teaching experience, personal self-efficacy could be of a great importance as it may be related to their professional beliefs in differentiated instruction and shape their teaching methods.

2.3. Teachers' beliefs and practices in relation to differentiation of content, process, product and assessment

According to Tomlinson and Imbeau (2010), "Differentiation can be accurately described as classroom practice with a balanced emphasis on individual students and course content" (p.14). In other words, an effective differentiated classroom must include three main components to best understand students' personality and needs: readiness, interest and learning profile.

Readiness is explained as a "student's entry point" in relation to his current knowledge in particular area and skills (Tomlinson & Imbeau, 2010, p.32). Put it another way, teachers should assist students with less developed readiness to see what their gaps are in curriculum and provide advanced students with more challenging tasks without unnecessary revision of the topics they have already proved they learnt.

Pham (2012) also reminds that it should be of a primary attention to consider that students' academic background may differ. In other words, not all students come to school with the same baggage of knowledge, not all of learners received equally effective content and instruction. Therefore, Pham further suggests that teachers need to take necessary

measures to modify their lesson plans, assessment mechanisms to "retain students' continued engagement" (p.16).

Students' interest to studying has been interpreted as students' inclination or tendency towards specific area or topic (Tomlinson & Imbeau, 2010, p.32). That is, educators could use some students' interest, for example, to music to help them learn a particular subject better. Another study done by Tomlinson et al (2003), claims that if activities at the lesson are designed with students' interests in mind, it might lead to building more engaging, creative atmosphere in the classroom.

A diverse classroom community makes it necessary to pay attention to the way students prefer to study. Different learners learn differently. For example, some may prefer to work alone rather than in a group. Others can learn better when the diagrams are presented, some when there is more audio involved. As Tomlinson (2014) indicates, "Learning profile has to do with the ways in which a learner learns. It may be shaped by intelligence preferences, gender, culture, or learning style" (p.33). Thus students' learning profile needs to be considered to create a successful environment for studying.

Further, Tomlinson and Imbeau (2010) recommend teachers to differentiate in all or either of the following elements: content, process, product and an affect. They interpret the content as the "knowledge and skills we want our students to learn" (p.15), process as a way of how students comprehend the content, and the product as the method of how students present their final outcomes. The fourth curriculum related element is affect, i.e. the impact of students' emotional state on their learning.

Tomlinson and Imbeau (2010) support the idea that elements such as learning environment, curriculum, assessment, and instruction, their adaptation according to students needs make the class responsive and engaged. Similarly, the study done by Dixon

et al. (2014) affirms that in a diverse classroom the way content is demonstrated should be of vital importance, along with the process of how it is learned and the final product, i.e. students' responses. That is to say, teachers who adapt their teaching techniques to meet every students needs in their classrooms are most likely to enhance those learners' abilities and contribute to their growth, no matter what these learners' current level of knowledge could be.

Taylor's (2015) study also argues that the three stones on which a foundation of the differentiated instruction should be built on are the content, process and product. A process of differentiation can be done in three ways: "content—the "what" of instruction; process—the "how" of instruction; and product—the "evidence" of instruction" (p.14). She further explains the differentiation of content by teachers' skills to diversify the level of difficulty. In her point of view, differentiating process is related to how educators adapt the activities with students' learning interests and styles in mind. Also, a fact that students are free to select the method of demonstrating their final product contributes to the benefits of implementation of differentiated instruction in the classrooms. Taylor (2015) also mentions that assessment should be varied according to the readiness level of the students.

Levy's (2008) findings on the importance of differentiating the product and assessment are in line with the results of Taylor's study (2015). To illustrate, she makes it clear that even when teachers are preoccupied with the issues of how to cover every point of the standard curriculum, i.e. content, they should not prevent differentiation to be included in the learning process. She finds differentiation process as a significant part of the strategy as it allows providing support of students of different levels.

Similar conclusions have been expressed in the variety of other studies. Other studies also agree that content should be a significant component of effective differentiated

instruction. For example, Theisen (2002) states that "Applying standards while designing and organizing instruction, a teacher must be clear on what all students need to know, understand, and be able to do at the end of the unit" (p.2). Put another way, an educator who is aware of students' differences should be able to benefit from the information and differentiate the content, a way students perceive the content, and facilitate in learners' choice of presenting the final product.

George (2005) and Tomlinson (1999) define the heterogeneous classrooms as a learning environment that provides equality and an opportunity to cooperate for students' full potential. They emphasize the importance of the core values that can ensure diversity in the classroom, so everyone will have a chance to be included in a successful educational process. In addition, they both agree that DI could be a strategy to achieve these goals. George (2005) states that "The heterogeneous classroom can provide a real-life laboratory for the development of important interpersonal and social knowledge, skills, ….while simultaneously providing opportunity for varied types and degrees of academic achievement" (p.186). Furthermore, he states that in successful heterogeneous classrooms where the curriculum and instruction have been prepared in a meticulous and accurate manner, children as individuals may have more chances to be heard and less to fall behind. That is to say, both teachers and learners, in those types of classrooms will see their differences "as assets that strengthen their whole school" (p.187).

Tomlinson (1999) also sees the importance of heterogeneity that helps to provide equal opportunity for everyone. In her view, classrooms with thoroughly considered and designed curriculum and instruction will enhance every student's ability to progress, therefore ensuring values of equity and excellence.

One more element in addition to three core elements of differentiated instruction which are content, process and product, is assessment. Research done by Moon (2005) argues that assessment is an essential component of effective differentiated instruction. She states that "instructional decisions rest… on the shoulders of teachers and onto one of three important phases of assessment, which are planning instruction, guiding instruction and evaluating instruction" (p.228). Moon (2005) explains the importance of each phase, the implications of misalignment and how teachers apply the data. Moon's findings imply that assessment takes an important place in meetings all students' needs.

Assessment is an important element of differentiated instruction as it "is today's means of understanding how to modify tomorrow's instruction" (Tomlinson, 2014, p.31). Put another way, the assessment that takes place every day gives teachers a chance to receive in-depth information in regards to students' readiness, interests and manner of learning. Moreover, Tomlinson underlines that assessment plays a major role in differentiated instruction as it encourages students to be more responsible for their own studies.

Overall, the reviewed literature reveals different perspectives on differentiated instruction. The implications of studies suggest that differentiated instruction has been seen as an effective teaching strategy over the years. Nonetheless, a question of which components of differentiated instruction teachers should be more focused on seems to remain open. Also, it is important to learn what practices could ensure the success of implementation of the strategy in our classrooms.

2.4. Kazakhstani teachers' perception and practice of differentiated instruction

When it comes to the studies done in Kazakhstani context, there seems to be some discrepancies in local teachers' perception of differentiated instruction. Aliyeva (2018)

found that although teachers demonstrate an overall understanding of the central aspects of differentiated instruction, they tend to be more concentrated on students' abilities rather than on other factors, including learners' learning profiles and interests.

In another study, Abildayeva (2010) argues that in teaching the Russian language to non-Russian students, a differentiated approach is to be considered of an utter importance. Due to the specifics of the Russian language as a school subject, there is a significant gap in the perception of a non-native language by students of different nationalities, and therefore the differentiated approach plays an important role in providing every student with an equal opportunity to study. The author explains that, for example, in primary classes, differentiation should be based on the difference in the requirements for students when, studying by the same program and one textbook, students are given the opportunity to learn state required topics at different levels, however not below the basic level. Further, Abildayeva (2010) sees the absence of specified and established methodology of how to employ differentiated approach in Russian language classrooms of Kazakh Medium Instruction school as a disadvantage. However, such explanation tends to overlook the facts that in differentiated instruction, or in this case approach, a variety of factors should be considered and changed in the process, which could not be possible to happen if done under conventional programme. It needs to be kept in mind, that the most decisive factor in the area of differentiated instruction would be its flexibility. In other words, when employing differentiated instruction in their classrooms, teachers are advised to adapt the content, the process, the product as well as the assessment to the needs of every student (Tomlinson, 2005). Such approach requires flexibility and quite unlikely to happen under established methodology and might contradict the very essence of the differentiated instruction.

Unlike the previous study, Karabutova and Tukenova (2017) understand that differentiated instruction might not always follow a fixed procedure. Rather, they find it more creative in its nature. In their study, Karabutova and Tukenova (2017) underline the significance of differentiated instruction for preschoolers. They identify group, pair and individual forms of work as major factor for these students to succeed in learning Kazakh language. This coincides with Tomlinson's (2000) findings who highlights that employing different forms of work enhances students "to address the needs of a wide variety of learners" (p.25).

It is important not to confuse readiness with ability. Ability is "more or less fixed trait" (Tomlinson & Imbeau, 2010, p.16) whereas readiness can be characterized as a temporary gap in students' knowledge that can be easily filled in with teachers' support.

Some researchers argue that one of the main issues for Kazakhstani teachers can be a readiness level of students, particularly in primary school (Zhekibayeva & Chernushenko, n.d.). They emphasize that different levels of readiness might prevent learners form successful studying and therefore cause inequality. For example, some students might acquire information faster; others may need more time to analyze the concept. That, in turn, might create some gaps in students' knowledge and make their readiness level different. In other words, pupils' readiness level should be taken into account as well as methods teachers employ to present the content. Also, the authors recognize the fact that some learners need to work in their own pace, they may perceive only a limited amount of information and even might require different forms and types of work in order to master the content.

That goes in line with Utegenova, Smalgi and Onishenko's (2018) findings. In their view, differentiated instruction is a chance "…to create conditions under which every

student will be able to demonstrate his abilities and skills, where his interests will be taken into account…" (p.33). They underline three major aspects of differentiation: individual peculiarities of every student, grouping based on individual peculiarities, and consequently differentiation of the process in groups. In their study, they highlight that differentiation mainly should be represented in two approaches: by students' readiness level and by differentiation of content (p.31). In the first approach the decisive factor is how students' level of readiness relates to their performance level. In other words, once a student is able to do the basic level task, he will manage to perform slightly more challenging assignment until he reaches the advanced level. This seems to be in line with Tomlinson's definition of readiness, but Utegenova, Smalgi and Onishenko call it "urovnevaya" (levelled) differentiation. The second approach underlines the significance of differentiating the content. Put it another way, different groups of students should learn materials of different levels of difficulty. However, that approach appears to look more as an ability-based approach as the authors did not mention that gaps in students' knowledge are supposed to be filled in to give students a chance to move forward and reach a necessary point.

Overall, some of the studies seem to be more focused on differentiation of students by their readiness level and grouping according to it while others give more attention to teachers' perception and practice of differentiated instruction. For example, Kazakhstani literature seems to focus more on concepts of readiness and ability rather than on differentiation of assessment and product. However, according to many other scholars, differentiated instruction has far more aspects to be considered, such as learning profile, assessment, differentiation of the product (Hall, 2002; Tomlinson, 2000, 2010, 2014).

2.5. The conceptual framework for examining teachers' self-efficacy and differentiated instruction

Conceptual framework developed for this study consists of the concepts essential for understanding differentiated instruction and teachers' self-efficacy. For example, for differentiated instruction the most important concepts are content, curriculum and instruction. The most comprehensive and extensive interpretation of the differentiated instruction is given by the model of Tomlinson (2014). It indicates the four corners of effective differentiated instruction: content, process, product and assessment which align with other studies but also adds affect as an important element. This model is based on three categories that can make the classroom more responsive. They are readiness, i.e. learners' current condition to learn, interest, which is a specific area where a student can demonstrate his best skills and learning profile that helps to see the ways learners most effectively perceive and perform the content. This model appears to be the one that includes all the aspect of the effective differentiated instruction. Therefore, Tomlinson's model was taken as a foundation for this research.

Also, it is important to reveal whether there could be a correlation between teachers' self-efficacy and their beliefs in differentiated instruction. According to Bandura (2006), self-efficacy considerably impacts of humans' beliefs in their abilities to perform a given task. Moreover, he states that it shapes the behavior "by its impact on determinants such as goals and aspirations, outcome expectations" (p.309). Therefore, it could be important to examine how teachers' self-efficacy might impact their willingness to implement differentiated instruction in their practice.

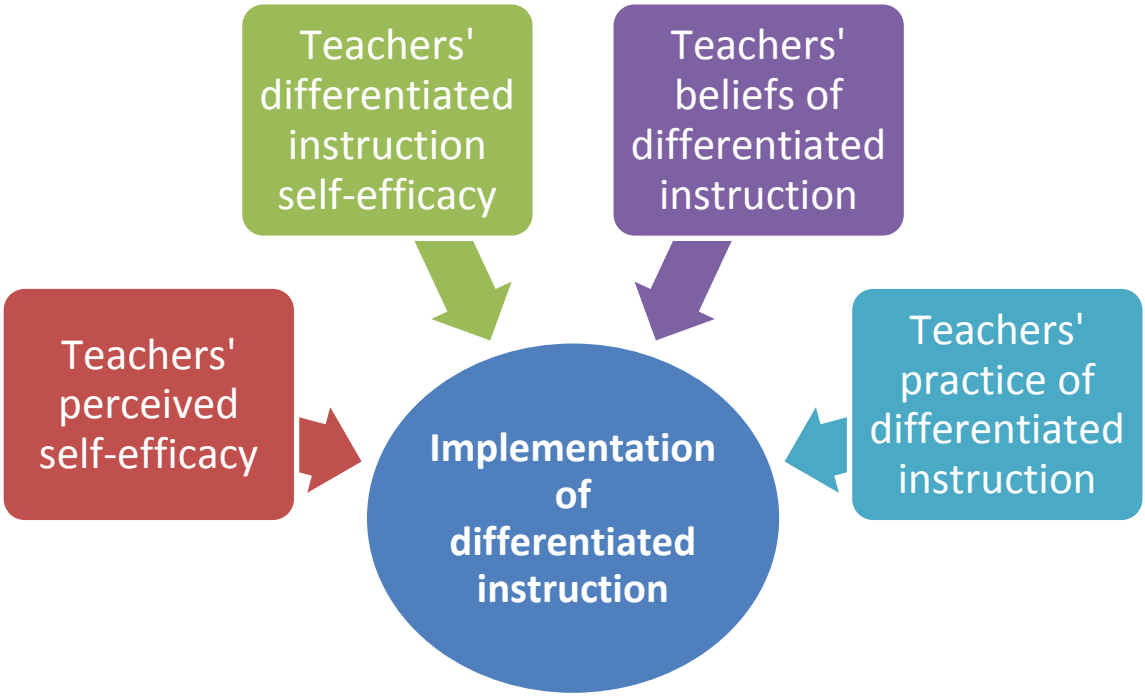

Figure 1. DI implementation in relation to teachers' self-efficacy, perception and teaching practices

Source: The author.

Another important concept for this conceptual framework was to reveal how teachers' belief in their capabilities to perform differentiated instruction reflects their way of teaching. To be more specific, it is important to observe how teachers adapt these characteristics of differentiated instruction based on students' readiness, interest and learning profile in their classrooms. Thus, teachers' self-efficacy and their beliefs in relation to differentiated instruction was the foundation of this research model, as demonstrated in Figure 1.

Overall, these studies outline that teachers' self-efficacy might be related to their perception of differentiated instruction and their willingness to implement differentiated instruction in their practice.

Differentiated instruction is an efficient teaching approach that ensures the every student's voice is heard and performance is assessed. More importantly, this approach supports the diversity and equity in the classroom as well as considering every individual's background, learning profiles, interests and readiness to perceive knowledge. However, in Kazakhstani context it is often a case that differentiated instruction mostly occurs when students are differentiated according to their knowledge level and does not take into account other important components of differentiated instruction.

Other findings refer to a fact that despite teachers' sincere desire to implement new strategy their lack of confidence, or belief in their abilities to perform successfully might prevent them from fulfilling their wish. Therefore, teachers' level of self-efficacy regarding their willingness to perform a new task should be taken into account as a major fact when implementing differentiated instruction in the classroom. The literature review provides theoretical grounding for the present study methodology for which is described in the following chapter.

Thus, the conceptual framework in the study frames the methodology in the next chapter.

Chapter 3.Methodology

Chapter three describes the methodology and methods used in this thesis to study STEM and humanities' teachers' self-efficacy in relation to their perception and practice of the differentiated instruction in one school in Kazakhstan. This chapter describes the research design, the sampling strategy applied in the study, data collection instruments, data analysis procedures, and the ethical research procedures applied during the study.

3.1. Research design

In his explanation of what research is and revealing its values Creswell (2012), one of the most well-known experts in the area of research design in education, presents various points. He starts with the fact that good research expands our knowledge, shapes our practice, "evaluate approaches how to work with individuals in educational settings" (p.5). A study done by Grandy, Mills, Durepos and Wiebe (2010) claims that more thorough research can be done by employing an instrumental case study as it is a "tool that facilitates the understanding of a particular phenomenon" (p.3). The focus of this research was to identify if there was a connection between teachers' self-efficacy, their perception of differentiated instruction and how it reflected on their practices.

The chosen design allowed the researcher to ask specific questions, which is one of the characteristics of the instrumental case as well as a chance to choose limited number of participants in order receive a "thick description of a particular site, individual, group, or occupation" (Grandy et al, 2010, p.2).

As the purpose of this study was to identify teachers' level of self-efficacy in relation to their perception of differentiated instruction and practices applied in the classrooms, instrumental case study was found as the most suitable research design for the following reasons. Firstly, quantitative survey on self-efficacy assessment allowed identifying the level of teachers' perceived self-efficacy and self-efficacy in relation to differentiated instruction. Secondly, qualitative methods such as semi-structured interviews and documents analysis helped to gain more thorough information on how teachers understood the nature of differentiated instruction and best implemented it in their practice.

Therefore, based on the questions of the study instrumental case study research design was used. The focus of the study was on the relationship between the confidence and teaching, i.e. how the self-efficacy influences teaching. In order to establish whether such a connection was possible, the following concepts were the foundation of this research model: teachers' perceived and differentiated instruction self-efficacy, teaching beliefs in differentiated instruction and teaching practices.

Also, the strength of instrumental case study research design is that it provides an opportunity to triangulate data in order to examine the phenomenon more in-depth. In this study, data collection method was triangulated by generating four components of evidence-self assessment survey, interviews, an observation, and document analysis as demonstrated in Figure 2.

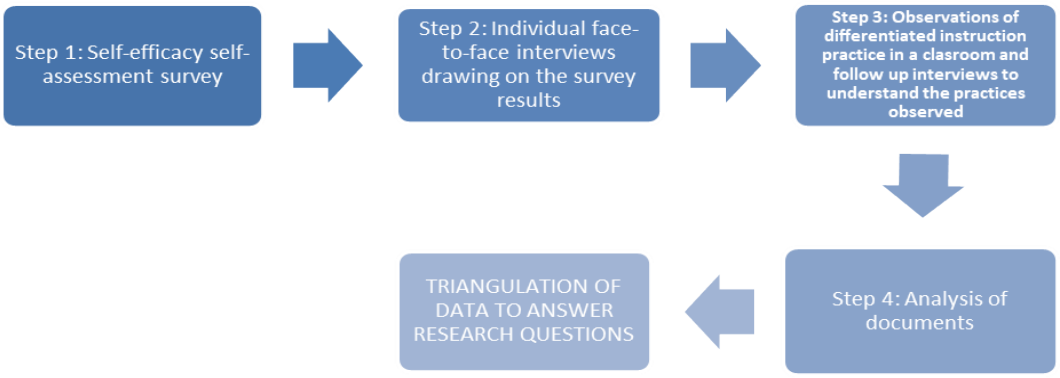

Figure 2. Triangulation of data collection methods

Source: The author.

To be more specific, during the first stage of data collection teachers filled out a questionnaire (see Appendix B). The purpose of this questionnaire was to help the researcher to get a better understanding of teachers' self-efficacy in relation to their beliefs and implementation of differentiated instruction in the classrooms. This survey was developed on the model by Bandura (2006) to measure self-efficacy of teachers.

The next step in the data collection was one-to-one semi-structured interview was conducted with each participant (see Appendix C). Information from the questionnaire about self-efficacy self-assessment was used to develop a better understanding of how teacher self-efficacy self-assessment related to their beliefs and practices of differentiated instruction.

Next, there was a classroom observation of each participant. The purpose was to gather information of how the content, assessment and process of the differentiated instruction was being implemented in teachers' practices, which methods and techniques were being used.

Lastly, researcher analyzed course plan and the lesson plan of each teacher to see how the differentiated instruction has been considered and included.

3.2. Research participants

The participants were chosen by purposive, non-probability sampling method which is needed when the researcher selects the sample based on his judgment (Black, 2009). This goes in line with Creswell (2012) who states that with purposeful sampling "researchers intentionally select individuals and sites to learn or understand the central phenomenon" (p.206).

Participants in this study are teachers in a school in Kazakhstan. The determining factors in selecting participants were the subjects they teach at school. The reason for that was the fact that they could bring more insights from both STEM and Humanities teachers' points of views and consequently benefit the findings of the study. Another reason was participants' teaching experience which ranged from two years to fifteen and more. That is to say, a big range in teaching experience was important as it allowed the researcher to collect as diverse data as possible about the relation between teachers' level of confidence and their beliefs in differentiated instruction and how it reflected on their practices of differentiated instruction. Therefore, the choice was determined by the scope of science and humanitarian subjects that the selected participants teach and coordinate. The participants of the study were 6 teachers who teach STEM and Humanities subjects. To be more specific, three Humanities teachers: 1 English language, 1 Kazakh language, 1 Russian language and three STEM teachers: 2 Mathematics and 1 Biology were invited to take part in the research. Table 1 presents information about research participants. In order to protect the identity of participants all of them were given pseudonyms. Participants will further appear in the paper by their pseudonyms to keep the identities protected.

Table 1

Participants in the study

Pseudonym	Teaching subject	Age	Teaching experience
Gulnar	STEM	mid-thirties	7 years
Ahmat	STEM	mid-twenties	6 years
Gulzat	STEM	early twenties	2 years
Sandu	Humanities	mid-thirties	15 years
Duken	Humanities	mid-forties	16 years
Jazmine	Humanities	mid-thirties	5 years

Source: the author

3.3. Research site

The research site is a school located in a remote city in Central Kazakhstan. This school-lyceum accepts students only from the seventh grade, when they are 12 years of age or older. There are about 300 students and 20 teachers at the school. The grades range from the seventh till the eleventh.

The choice for the site was made according to several reasons. Firstly, this particular school was considered to be one of the best schools in the city. That is, the students of this school have been demonstrating high academic achievements for a long time and teachers have been implementing the innovative practices to enrich their teaching process. Consequently, the conclusion had been made to choose this school as a research site to explore whether the reasons of such progress could be related to teachers' high self-

efficacy and their beliefs and practices towards innovative pedagogical practices such as differentiated instruction. Also, it was a new workplace for the researcher and therefore allowed her to look at the research from different perspectives.

3.4. Research instruments

In this study, data were collected through various methods. Namely, self-efficacy measuring survey, semi-structured interviews, structured lesson observations, and documents analysis in order to answer research questions about the relation between the relationship between teachers' self-efficacy self-assessment and perception and practice of differentiated instruction.

1. Self-efficacy assessment survey

The self-efficacy assessment survey (see Appendix B) enables a researcher to obtain valuable information about how "participants judge their ability to meet challenges or to surmount various impediments" (Bandura, 2006, p.311). Hence, the method of survey was chosen to examine participants rating of their perceived self-efficacy and self-efficacy in differentiated instruction as there was a hypothesis that their level of confidence might impact participants' willingness to implement the differentiated instruction in their practice.

The idea of this model is for participants to rate their capability of performing a specific task using 0 to 100 point scale. The scale begins with "cannot do at all" (0) followed by 50 in the middle of the scale which indicates "moderately certain can do" and ends with "certain can do" (100). Then the efficacy score are summed and divided by the number of items which calculates the strength of perceived self-efficacy. The researcher modified the survey by adding ten items to measure teachers' self-efficacy in differentiated instruction.

The statements were thoroughly designed to provide participants with an opportunity to evaluate their personal level of confidence, to think about how the degree of their confidence might determine their actions and behavior. The statements were divided into two parts. The part of the survey consisted of questions relating to perceived self-efficacy where participants were asked to rate their self-efficacy in their abilities to perform any new tasks without fears and to keep moving forward to face new challenges. The second part of statements was about teachers' confidence in understanding the nature of differentiated instruction and their capability of implementing it in practice. That is to say, teachers were asked to assess their capability to understand and differentiate the content, assessment, process and product in the process of differentiation.

2. Semi-structured individual interviews

The second data collection method in this study was a semi-structured interview. According to Creswell (2012), this method is useful as the participants can share "detailed personal information" (p.218) and because the interviewer can ask follow-up questions to obtain more information. Consequently, this method was useful to explore the opinions of the participants more thoroughly due to a possibility to ask specific questions into further evaluation of personal and professional experiences.

The interview questions were designed according to research questions and allowed participants to share their experience and bring valuable insights into the exploration of the phenomenon. The interview questions were asked in regards to teachers' perception of the essence of the differentiated instruction and the possible effect of self-efficacy on teachers' readiness to implement differentiated instruction in their practice (see Appendix C). To be more specific, teachers were asked questions in regards to how they understand the concept of differentiation and students' diversity, specific methods they use in their classes to meet

the needs of all students, and how confident they feel in their willingness and readiness to try innovative strategies, such as differentiated instruction, in practice.

3. Lesson observation

Another data collection method that was employed in this research was lesson observation. The purpose of the observation was to see how teacher differentiated content, assessment and process based on student need: readiness, interest and student profile. According to Creswell (2012), method of observation was effective as it allowed the researcher "to record information as it occurs in a setting, to study actual behaviour" (p.214). Hence, the main aim of the researcher was to collect the information in the process of teaching and to explore which methods of differentiation the participants employed in the lesson.

The researcher conducted a structured observation. The researcher's role was of non-participant observer. Only one lesson of each participant was observed. Each observation lasted for 40 minutes. Classroom observation protocol was designed specifically for the purpose of this study (see Appendix D). For ethical reasons, observation of the product, which is the learning outcome of students' work, was not included in the observation protocol in order to exclude children from observation. Therefore, the main focus during the classroom observation was on teachers' ability to differentiate the content, process and assessment based on students' interests, readiness and learning profile. Because of ethical considerations, the researcher ignored the data involving students. The observations were aimed at observing the general learning process and activities taking place in the classroom, type of interactions happening, the grouping types, the pace of instruction, the level of cognitive activity, flexible use of time and varied teaching modes. The researcher indicated all the mentioned activities by checkmarks in the

observation protocol if they did take place in the class, and by crosses if such activities were not observed during the lesson.

4. Document analysis

The fourth method of data collection that helped the researcher to confirm the validity of the information obtained from survey, interviews, and lesson observations was document analysis. Documents analyzed were lesson plans and course plans to find out how exactly teachers apply their skills of differentiated instruction to differentiate the content, assessment and process so that it meets the learners needs. The reason for choosing document analysis method was due to Yin (2011) who referred to it as a valuable method that allows to collect data on "physical and social environment" (p. 147). Thus, the need for physical objects such as lesson and course plans to be seen, observed and analyzed was met through exploiting that method. Participants provided researcher with their lesson and course plans.

3.5. Procedures

Empirical data collection in this research started after ethical approval granted by Nazarbayev University Graduate School of Education. After receiving the approval, the researcher approached the principal of the research site to provide him with information about this research, explained the purpose, and likely benefits this study may generate for teachers and school in general.

After the principal allowed to conduct this research at the school serving as a research site, an initial email was sent to all twenty teachers of the school inviting them to participate in the study. Only ten teachers responded to this invitation and the researcher chose six based on the subject and teaching experience. Three Humanities teachers and three STEM teachers were chosen: one English language teacher, one Kazakh language

teacher and one History teacher. Those who represented STEM subjects were two Math teachers and one Biology teacher. Upon receiving an agreement to participate, the research participants were invited to a personal meeting. During that meeting they were asked to carefully examine and sign an informed consent form.

1. Self-efficacy assessment survey

The first step in data collection was organizing another meeting for participants to decide whether they would prefer to complete the survey online or to choose a paper-based format The researcher chose the time and venue for the meeting according to the convenience of the research participants one week before the meeting. Research participants were notified about the time and venue for the meeting through a phone call. Paper-based and online versions of the survey were prepared in advance, before the meeting as the researcher wanted to provide participants with them at once. At the meeting all the participants chose paper -based surveys and they received them in sealed envelopes instantly. Participants were informed that it would take around 15-20 minutes to complete the survey. Participants were also asked to choose a date for to fill in the surveys, and all of them agreed to complete the surveys within the following week. When the deadline passed, the researcher collected surveys from participants personally.

Self-efficacy assessment survey tool was adapted from Bandura's (2006) self-efficacy assessment survey which measures participants' level of capability to perform new tasks and divided it into two blocks consisting of ten statements each. The first block of statements regarded statements evaluating teachers' degree of perceived self-efficacy while in the second block of ten statements participants were asked to rate their confidence in their ability to perceive and implement the differentiated instruction. All participants completed the survey and answered all the questions in the survey.

2. Semi-structured interviews

After survey data analysis, the venue and time was chosen to conduct face to face interviews with each participant. Time and venue was chosen according to preferences of each individual participant. All the participants were notified about the place, date and time of their meetings one week before the interview via a phone call. Interviews consisted on a number of open-ended questions about teachers' perception and practice of differentiated instruction. Also, there were open-ended questions regarding teachers' points of view of possible connection between the level of their self-efficacy and their willingness to apply innovative teaching techniques in practice. Each interview lasted for about forty minutes and was recorded on the phone with the permission of the participant. During the interviews, the researcher needed to paraphrase and ask several follow-up questions when participants seemed to struggle with understanding interview questions. Also, the researcher took some notes throughout interviews as it was convenient to generate ideas for the following analysis of data.

3. Lesson observation

According to Mathison (1988), the strategy of triangulation could be very beneficial, not just to prove the validity of the results, but also to show readers that findings might bring contradictory and inconsistent results. She underlines the value of such strategy and calls to use multiple source of data collection. So, lesson observations were useful source of data. After the interviews, the schedule for lesson observations was discussed with each research participant individually, according to time most convenient for them.

One lesson was observed. Each lesson observation lasted for forty minutes. The researcher developed the lesson observation protocol in order to learn if the differentiation

of the content, process and assessment was present. Differentiation of the product was excluded due to ethical reasons. Once the lessons ended, the follow-up questions were asked upon the necessity. For example, researcher noted that one of participants did not seem to be keen on differentiation of formative assessment. Therefore, it was necessary to clarify the situation to avoid assumptions from researcher's side. Thus, researcher needed to conduct after lesson interview with that participant.

4. Document analysis

One week before lesson observations, the researcher called each participant to ask for their permission to analyze their lesson and course plans. All participants concurred to the request but wanted to present the documents only after the lesson observation ends and only in their presence. Each participant was informed that the documents would be analyzed to find information on how teachers apply differentiated instruction in their practice. However, participants did not agree to allow take copies or photos of their lesson and course plans. They agreed to show the documents, but did not allow the researcher to take them for analysis. Therefore, the following step was in interview with each teacher about how the differentiated instruction was presented in the documents. After each observed lesson finished, all participant showed their lesson and course plans, answered researcher's questions regarding the differentiated instruction. Therefore, step four was an interview with each teacher about how the differentiated instruction was presented in the documents.

3.6. Data analysis

The researcher used the data triangulation approach: self-assessment survey, interview, observation, and data analysis. The analysis was guided by the research questions and theoretical framework which examines the implementation of the

differentiated instruction considering the concepts of content, process, product and assessment. The survey results were analyzed to identify participants' level of self-efficacy. The purpose was to examine whether participants' personal differentiated instruction self-efficacy impacts teachers' willingness to implement the differentiated instruction and shapes their teaching practice.

The next step was to conduct semi-structured interviews with participants. In the process of interview, the researcher managed to ask follow-up questions and respond to questions and emotional reactions of participants.

Once the interview data was collected, the data were transcribed and coded manually considering the research questions. Next, codes were organized and divided into groups to identify the themes relating to research questions. The following themes appeared most frequently in the process of analysis the interview data: differentiation of the content, process, assessment and product based mostly on students' ability and interests, sometimes by learning profiles, perception of diversity in relation to learners' psychological, intelligence, and age peculiarities as well as different educational backgrounds and abilities, confusion the readiness point of students with their abilities to perceive and process the information in a different manner. The analysis of participants' answers helped the researcher to connect findings with the literature, and to find necessary information to support the research questions.

Information obtained during the lesson observations was transcribed and coded according to the appearing themes. The observation themes were the following: ability-based approach, learning preferences, interests, and groupings. The lesson observation protocols as well as reflective notes that the researcher took during the lesson observations helped to examine how teachers' perception of the differentiated instruction was reflected

in their practice. Also, lesson and course plans were analyzed to examine how participants implement their knowledge of differentiated instruction in practice. Participants allowed the researcher to look at the documents but did not give permission to take the documents for a full and detailed analysis. All participants preferred to show the documents after each observed lesson finished and answered researcher's questions regarding the differentiation being in the plans or not.

3.7. Ethical considerations

The data collection started when research ethics approval was granted by Nazarbayev University Graduate School of Education Research Committee. All the teachers were provided with the consent form and were free to leave the study whenever they feel it appropriate. Participation in this research was voluntary.

This study complied with the requirement for confidentiality and anonymity in order to protect the identities of participants. The identities of all the participants were protected by using pseudonyms. In the interview transcripts their names were replaced by pseudonyms. The same approach was applied to the self-efficacy questionnaire, no real names were revealed in this document.

The permission to record the interview was received from participants. The recordings as well as interview protocols were kept password protected on researcher's laptop. In addition, the participants were informed that all the recording as well as the notes will be discarded as soon as the data is transcribed and analyzed. Participants were informed that no one else but the researcher and the participant would know the data. All the data was discarded as soon as the data was analyzed.

As the researcher followed norms of ethics in research and followed the conventions of the data collection methods to the best possible standard, it is believed that this study has

generated authentic and trustworthy data which you will be presented in the next chapter on research findings.

Chapter 4. Findings

Six teachers as six cases of self-efficacy and differentiated instruction practice

In this paragraph the researcher analyzed the data from a number of sources for each teacher with a purpose to develop a detailed analysis of each teacher's self-efficacy assessment, its relation with the willingness to implement differentiated instruction, and practice of differentiated instruction. There were six participants in this study. Gulnar and Ahmat are teachers of Math, Gulnaz teaches Biology, Duken is a teacher of History, while Jazmine and Sandu teach English and Kazakh correspondingly.

4.1. Case One: Teacher Gulnar

4.1.1 Gulnar's self-efficacy

Gulnar is a young woman in her mid-thirties. She has been teaching for seven years, with three years of teaching experience at the research site. Gulnar participated in a number of professional development programmes and she is considered to be one of the most successful teachers at the research site based on the academic results of her students.

Participant Gulnar rated herself with the highest level of self-efficacy of 98 points in almost every area self-efficacy (see appendix F). However, when it came to rating a statement "I do not give up when the tasks are difficult", she was slightly less confident about not giving up when the task is difficult (see Appendix E). Nonetheless, her level of self-efficacy still remained high. The statements she gave during the interview confirmed her high level of self-efficacy. Gulnar expressed a strong belief that a good teacher should not give up and be confident about her abilities even if she might lack some knowledge.

She stated: “Even if you lack some knowledge about it [differentiated instruction], you can look it up yourself, you’re supposed to know how to meet the needs of all students, and you were taught how to do it.”

As for her degree of self-efficacy in differentiated instruction, she showed maximum certainty in understanding the nature of differentiated instruction and the capability to perform it in practice (see Appendix H). When the researcher asked a question about whether her high level of self-efficacy could relate to her eagerness to implement differentiated instruction in their practice, Gulnar responded positively. She said:

> There is a significant relationship between the teacher’s confidence in his/her abilities as a teacher and their willingness to use differentiated instruction. I mean if a teacher doesn’t believe that he can do it properly, that could mean he doesn’t even understand how to be responsive to students’ needs. However, if a teacher believes in his ability to do a good job, be able to teach in a way that every student responds, he can do it.

Although Gulnar rated herself as almost 100 percent confident in her ability to understand all the aspects of the differentiated instruction (see Appendix G), data from the interview showed some discrepancies with this high self-assessment in the survey. For example, in her description of differentiation of the product, she talked about a variety of ways how to differentiate the content rather than the product, which is a student learning. Moreover, Gulnar seemed to prefer the teacher to be in control of the differentiation of the process rather than allowing her students to take more autonomy when presenting what they have learnt.

Despite the high level of confidence in her knowledge and expertise in differentiated instruction, Gulnar mostly connected differentiated instruction to ability - based learning, grouping students according to their ability. For example, during the lesson observation the researcher noted that Gulnar mostly the complexity- based tasks

when less advanced students were given easier tasks and more advanced learners more difficult tasks. Although Gulnar's differentiation was based on readiness, she mostly focused on repetition of skills students have already practiced and did not provide tasks to help student to move further. Also, in some cases she seemed to misinterpret the concept of the differentiated instruction. The next section describes Gulnar's approach to differentiated instruction and illustrates some cases of misconceptions of differentiated instruction.

4.1.2. Gulnar's perception of differentiated instruction

It important to identify what differentiated instruction and students' diversity was in Gulnar's understanding. The data obtained from the interview showed that Gulnar associated differentiated instruction mostly with teacher's ability and eagerness to modify her teaching approach to the level of students 'ability. To be more specific, Gulnar emphasized that teachers should be able to find a specific approach to every student in order to "explain the content in the level of language student is able to comprehend". That is to say, the teacher should be able not only to find an individual approach to every student, but also be ready to "adjust ourselves as teachers to his [student] level [of comprehension]. In other words, no matter how many students you have, make sure that the content is correctly perceived by each of them". Furthermore, Gulnar emphasized learners' preference of particular subjects as one of the principles of diversity. Put in another way, some students learned more effectively if they liked the subject, therefore those who did not prefer the subject needed a different approach. Also, Gulnar added students' interests as one of significant elements of diversity in differentiated classroom which could be considered as good principles of differentiated instruction.

As for the differentiation of the content, in Gulnar's view it is imperative to differentiate the content by differentiating the tasks. As she stated, when the content could be challenging for students to comprehend, the tasks should be differentiated according to the level of their performance. She explained: " …first I try to present the materials at the easiest level, and only after that I try to give them the more advanced tasks. For example, in Math we use levels A, B, etc. Here, levels A and B are for those learners who are struggling, for more able students I give tasks of level C and D which are of more advanced levels". It should be noted that although Gulnar was trying to meet the readiness of her students, she did not mention that these levelled tasks had a temporary effect. That is to say, once she helped her struggling students to identify the gaps in relative knowledge and guide how to close that gap, she could support her students to move forward and be in line with the rest of the class. Therefore, researcher presumed that even though Gulnar seems to understand the nature of the concept of readiness, she does not perceive it to its fullest extent.

Another important component of differentiation is in the process, i.e. activities that help student to apply skills learned from the lesson. In Gulnar's case differentiation of the process was mostly related to grouping students and organizing engaging activities such as competitions to verify student's complete understanding of the lesson. She said: "After I group them, explain the topic, I organize some kind of competitions to see whether students understood the content. They love working in groups and competing." Here, Gulnar did not mention how she helps her students who would rather work alone than as a team. Thus, students' preferable way of learning appeared to be left out.

The findings showed that Gulnar tends to see differentiation of the product or learning, which is the work student use to show what they have learned and achieved, as the responsibility of the teacher. However, literature suggests that differentiation of the

product provides students with the best chance to show the results of their learning (Tomlinson, 2014). For example, she explained that in her practice she mostly uses video from various educational sites. Furthermore, Gulnar underlined that she would be persistent with presenting the content through videos despite the fact that some students' learning styles would be different. In other words, despite the fact that she sees that some students do not perceive the information to their best potential as their learning style is different, Gulnar still insists on a particular way of presenting the content. Researcher noted Gulnar seemed to confuse the concepts of differentiation of the content and the product, that is the material that needs to be acquired and the actual learning.

Gulnar shared her concern that most often educators tend to grade a particular learner by comparing his or her answer with other learners' responses. In other words, if three students were to be evaluated and two students gave unsatisfactory results and the third student's answer was slightly more complete, the third pupil will receive a better grade compared to two other learners. That finding proved that sometimes teachers tend to evaluate students based on average level rather than based on specific criteria designed for students to help them to reach a definite point or develop a particular skill. Interestingly, her answer seemed to contradict her next answer where she emphasized the importance of creating criteria to evaluate students' assignments.

However, the following quote showed that Gulnar's perception of differentiated instruction match with its description in the studies. For example, Gulnar stated that "a very intelligent student might sometimes struggle with giving the correct answer" and it was the teachers' responsibility to "understand why it is going on with this bright student, learn what is causing the problem." Based on this quote, the researcher noted that Gulnar indeed tried to find a different approach to each of her students.

When asked what other elements she would use to make the differentiation more effective, Gulnar insisted that the readiness level of students should be an important category to consider in an effectively differentiated classroom. However, Gulnar associated readiness with student's potential to learn the content and did not see it as a temporary gap in student's particular segment of knowledge. Interestingly, she brought a new category, which is classroom size, into attention. In her view, classroom size needed to be taken into account when providing support to every student in her class.

According to participant Gulnar, it was necessary to consider the way students perceive the information. That is to say, she tried to make her instructions as specific as possible, so every student would be able to follow them. For that to happen Gulnar would use various ways to explain the instruction: graphic organizers, videos, audio materials.

Data showed that, although Gulnar had demonstrated high self-assessment and general understanding of some concepts, such as differentiation based on diversity of learners and differentiation of the content findings showed that she put more focus on ability-based learning.

4.1.3. Gulnar's practice of the differentiated instruction

One of the questions of this study concerned teaching experience with differentiated instruction and strategies employed by the participants in order to differentiate content, process, and learning outcomes or product for their students.

Gulnar shared her vision on how to best perform the differentiation of the content through so called "levelled" activities. That seems to be in line with one of Kazakhstani studies where authors confuse "levelled" with activities given to students considering' their readiness level(Utegenova, Smalgi,& Onishenko,2018). That is to say, she explained the content through a variety of tasks of varied complexity. She labeled the tasks A, B, C,

D according to the level of complexity, and had her students begin with the least difficult tasks A and B to ensure that every student had understood the content. She said: "At Math lesson levelled activities help me see that all my students perceive the topic in the same way."

However, neither her lesson plan nor course plans shared with the researcher provided any space for differentiation of the content, which is the materials she wanted her students to learn. As Gulnar admitted, she rarely included differentiation as a part of her lesson plan, especially when it was a practice lesson, where students revise and practice their skills of the previous topics. As she explained, she did not see any point in incorporating any part of the differentiation in her lesson plan because she was already aware of the needs, interests and learning profiles of each of her students and consequently, there were no reasons for writing a detailed plan for it.

Classroom observation showed that the content was presented in a similar way for the whole class, and only after that the teacher employed multiple level tasks to give students possibility to practice their skills. This resonated with what she had mentioned in the interview in regards to ability-based tasks for students.

Also, while differentiating the content, other than considering students' readiness, Gulnar considered students' interests and learning profile. That is to say, she used presentations linked to students' interests and also their learning profile by employing varied teaching modes, verbal and visual. For example, relating to students' interest with online games she organized a competition to practice the previous topic. In that way students managed to revise the topic through two teaching modes: visual through presentation and verbal through teacher's oral explanation. Also, in order to differentiate the process Gulnar used random grouping.

Overall, it can be noted that despite her high level of self-efficacy, findings showed that there might be some inconsistencies with what Gulnar thinks about the differentiated instruction and how she indeed implements it in practice.

4.2. Case Two: Teacher Ahmat

4.2.1. Ahmat's self-efficacy

Teacher Ahmat evaluated his overall self-efficacy highly, at 77 points (see Appendix F). Ahmat' was the most confident, at 100 points, in his capability to work hard to solve a problem, achieve the goals and not to withdraw in the face of complex activities (see Appendix E). Also, he underlined the probability of the theory that teachers' willingness to perform new teaching methods in their classes might depend on their level of confidence. He said: "Of course, if the teacher believes in his ability to face and perform some new task, he can be confident enough to try it, or some other new things."

Despite a high self-assessment in his perception of differentiated instruction, Ahmat made quite an unexpected announcement. For example, in Ahmat's understanding differentiated instruction was rather a one class approach. He said: "I mean, if a teacher tried to use differentiated instruction at one or several of his lessons, next lesson he would be willing to try something new, other than differentiated instruction." That finding showed that teachers' high self-rate of differentiated instruction does not always reflect on their practices.

Ahmat indicated his certainty to be able to face new challenges and effectively perform new tasks by 20 points lower than his determination to work hard to solve a problem and achieve the goals and not to quit the difficult tasks (see Appendix E). The data obtained from the interview explained the reasons for this lower rating of confidence: "...it depends on a teacher's psychological type as well; I mean how ready he is to be in

that type of situations. For example, if a teacher has not been successful with some lessons, it could mean he is tired. However, teachers need to think about their students first of all."

He also related probable unwillingness of teachers to continue with differentiated instruction to their burnout and low self-efficacy in teaching subjects. He said:

> It is not possible for school teachers to be the best expert in his subject, therefore teachers cannot let their doubts in their knowledge in regards to teaching subject diminish their self-efficacy. For example, university teacher might be more proficient in his area of teaching and can teach at school, but he would also face some challenges as well.

As for the self-efficacy level in regards to differentiated instruction, Ahmat self-assesed 85 points overall (see Appendix H). Ahmat was at 90 points confident in how to differentiate the product; however he felt by 10 points less certain in differentiating the assessment. Ahmat evaluated his degree of certainty in how to differentiate the instruction at 80 points and at 90 points in understanding the concept of readiness in differentiated instruction (see Appendix G). Data obtained from the interview with respect to differentiation of instruction and assessment proved Ahmat's capability to perceive those concepts in a correct way and ability to differentiate them in practice. For example, data obtained from his interview showed that Ahmat prefers to group students based on their learning styles and learning preferences rather on their perceived abilities, and assesses his students based on specific criteria.

Overall, Ahmat demonstrated high level of both personal and differentiated instruction self-assessment. He referred to psychological aspects of efficacy and motivation take a significant place in teacher's willingness to perform new activities.

4.2.2. Ahmat's perception of differentiated instruction

Identifying teachers' perception of differentiated instruction was one of the aims of this study. Consequently, during the interview this researcher tried to examine how teachers see and understand the nature of differentiated instruction.

Ahmat related differentiated instruction to learners' age, thinking peculiarities and the level of knowledge. He further explained that, there are children "who perceive a new topic easily, and there are the ones for whom it is difficult and this is differentiated instruction". Ahmat also brought up the importance of adjusting tasks according to the level of complexity.

As students' diversity in differentiated instruction is considered to be one of the major components, it was interesting to learn participants' points of view on this matter. According to Ahmat, the concept of diversity should consider "the psychological traits of individual students" along with students' preferable style of learning. In other words, students were diverse in the way they perceived the content and the way they learned. He said:

> If a student is a visual learner, he needs to be given appropriate tasks with more illustration, so he would learn in a more interested way, for audio learners you need to provide some audio materials. I mean they perceive the content differently and therefore you need to be prepared for that.

When the researcher asked whether the differentiation of the content was important, Ahmat said that "it is crucial to differentiate the tasks, especially in Math lesson. If you ask why it is because we are living in a constantly changing world, a word of technologies, information needs to be updated, so educators need to bear this fact in mind." In other words, it was important to employ innovative teaching techniques considering students' preferable learning modes and interests to ensure the absolute perception of the content by all the students.

As for the significance of differentiation of the process, Ahmat pointed to the importance of grouping. He went further and underlined that it would be more effective to group students according the learning styles preferences. He explained further that the earlier teachers identify the learning profiles and intelligence preferences of their students, the more effective the differentiated instruction would be in the classroom:

> At my first lesson I usually try to identify students' preferable way of learning, i.e. who is an audio learner, who is kinesthetic, etc. So, each group would have one of each type of learner, I mean one audio learner, one visual learner, etc. Then I create such a task for a group where each type of learner would be able to equally contribute.

Data obtained from the interviews showed that Ahmat found it necessary to support learners to differentiate the outcomes of their works through innovative educational techniques. To be more specific, teacher Ahmat found some forms of differentiation the product that teachers recommend their students to use to be outdated, such as power point presentation. He suggested employing new forms of presenting the results of students' work that would meet students' needs and interests. As an illustration he mentioned forms of the final product that involves students' interests or preferable ways of learning.

In Ahmat's understanding, differentiation of assessment was crucial. Ahmat explained: "We cannot evaluate the final product in the same way for an audio learner and for a visual learner." In other words, teachers had to take into account students' learning styles preferences. He further underlined that there should be "certain parameters" or specific criteria to effectively evaluate learners with different learning styles. Also, Ahmat warned that students were quite likely

> …to get tired of bored of it. I mean differentiated instruction should be some kind of surprise for learners, something nice to try and experience. In my opinion, if differentiated instruction is implemented at every lesson, it will likely to become something trivial, not new or original.

However, Ahmat did not mention anything with respect to the effectiveness of differentiated instruction.

It was important to examine Ahmat's opinion regarding the concept of students' readiness, which is students' current state relative to understanding the particular unit of knowledge (Tomlinson, 2014). Ahmat indicated that he employed tasks based on students' readiness to ensure that every student understood the instruction. Researcher noted that although Ahmat's perception of readiness was close to the one described in literature, he kept calling them "leveled tasks" Also, he emphasized that such factor as learners' interests, hobbies and learning styles might raise students' attention. Participant Ahmat suggested taking advantage of learners' interest in popular TV series as a chance to design certain activities.

Overall, the conclusion can be made that teacher's beliefs in differentiated instruction are mainly shaped by their personal beliefs to teaching mainly based on the readiness level of their students. Nonetheless, Ahmat proved that his confidence in differentiated instruction went in line with results researcher received during the interview. That is to say, he mentioned the main traits of differentiation in action: students 'learning and thinking styles, age and interests. The following section will show whether his perception of differentiated instruction was reflected in his practice.

4.2.3. Ahmat's practice of differentiated instruction

Teacher Ahmat pointed to the significance of employing multiple level tasks. He even referred to the way the content was taught during the Soviet era period when "students used to be given the same tasks which were not differentiated" and emphasized the value of differentiated instruction for the current education system.

Similar to Gulnar, in his lessons teacher Ahmat varied the tasks by ability, giving more advanced tasks to more high-achieving students and low-achieving students were provided with more support. For example, he organized peer feedback as assistance for less advanced students. He assigned one strong student to help learners who had been struggling with performing tasks. Additionally, Ahmat adapted the materials from the textbook to the level and needs of his students. He added more complex tasks to the ones which were in the textbook. However, the content was presented in a similar way for all the students without considering other possibilities to introduce it.

The analysis of lesson and course plans showed that the teacher did not include any differentiation of content in those documents. When asked about the reasons, Ahmat explained the following as "there is no needs to write differentiation of the content in details as I know by heart the advantages and disadvantages of every student of mine".

In Ahmat's point of view, differentiation of the process was of utter importance, particularly in grouping and pair work. As Ahmat stated:

> It is important to divide students into groups in a way that they would be able to find a common language with each other…students need to be able to work in pairs as well as in groups and individually, so, that kind of skill, being able to cooperate with others will help them in the future.

Put it another way, teachers should also consider students' emotions and feelings when planning how to differentiate the process. Also, Ahmat shared that teachers should know about students' "preferable way of learning". He stated that learning preferences would definitely support successful grouping when he ensured that each group had at least one "audio learner, and one who is kinesthetic". The lesson that was observed in Ahmat's class was a practice for United National Test where he formed groups based on students' learning preferences and ability levels, like participant Gulnar. For example, he adapted materials for visual learners and gave them a chart to work with. For kinesthetic learners

teacher gave out a board game and for students for whom it was easier to work with audio, teacher provided them with laptop and several headphones.

In Ahmat's understanding, teachers should keep in mind the preferred learning styles of their students and emphasized the significance of differentiated assessment for them. During lesson observation, Ahmat tried to demonstrate some techniques of how to evaluate in different ways. For example, he had his students to work in pairs and assess each other's work. That is to say, he paired one high-achieving student with one low-achieving student to assess his work, give feedback. Also, at the end of the lesson he asked his students to do a self-evaluation in the form of a short poem. However, Ahmat did not provide a detailed description of how the assessment would be differentiated neither in his lesson plans nor in his course plans. As Ahmat explained in informal conversation, he used differentiated assessment frequently, so there was never any need to describe it in detail in his lesson plans.

Although Ahmat talked about the importance of considering students' learning preferences in a successfully diverse classroom, observations showed that his teaching practice was mostly limited to ability based approach. However, he differentiated his students by learning preferences as well.

4.3. Case three: Teacher Gulzat

4.3.1. Gulzat's self-efficacy

Participant Gulzat presented a high level of perceived self-efficacy, at 94 points (see Appendix F). Her level of self-confidence reached the highest result, 100 points, in regards to her determination to work hard to solve a problem, to always achieve the goals and not to give up should the tasks to be too complicated (see Appendix E). When the researcher asked Gulzat to share her thoughts on a probable relation between teachers'

high sense of perceived self-efficacy and their willingness to implement innovative teaching strategies in their practice, Gulzat responded positively: “Of course, a teacher should have a high level of self-efficacy, needs to believe in his professional skills and knowledge about the subject... I think in any situation teacher must believe in herself.”

Gulzat showed a slight decrease, by 10 points in her confidence to be able to cope with challenges, her ability to work hard to achieve the goals and effectively perform new tasks as well as her capability to easily handle new situations. This result seems to be slightly different from what Gulzat shared regarding her ability to deal with challenges during the interview: “We need to face challenges to grow professionally. Despite the fact that I only graduated recently, and being a novice teacher, I am confident in my skills and ready to face challenges, and I intend to do so in the future.”

The relationship between teachers’ level of confidence and their perception of differentiated instruction and their eagerness to implement it in practice was one of the questions of this research. The researcher noted that Gulzat rated herself in differentiated instruction slightly lower, by 14 points, compared to perceived self-assessment. Her overall self-efficacy degree was at 80 points. Also, Gulzat’s level of confidence in differentiated instruction varied from one aspect of differentiated instruction to another. Namely, she assessed her self-confidence the highest; 90 points in regards to understanding the concept of students’ diversity (see Appendix G). The data received from the interview showed that Gulzat’s perception of diversity concurred with some characteristics of the diversity concept, such as learners’ style to perceive and process the information, their age peculiarities and abilities. Similarly, she gave the highest 90 points to perception of how to differentiate the product and assessment. Gulzat rated her differentiated instruction degree of certainty by 10 points lower, 80 points in regards to differentiation of the content, students’ ability and applying a variety of engaging teaching strategies.

When the researcher asked Gulzat about a probable connection between teachers' self-efficacy assessment and their readiness to accept differentiated instruction in their practice, she suggested there could be an association. She said: "It shapes the way teachers present their content, materials, how they prepare students for an exam."

Overall, it can be concluded that Gulzat's personal confidence seems to be slightly higher than her self-efficacy in differentiated instruction. Nonetheless, she firmly believed that her limited teaching experience would not impede her willingness to learn more and practice differentiated instruction.

4.3.2. Gulzat's perception of differentiated instruction

To examine how teachers perceive the essence of differentiated instruction, the researcher interviewed each research participant. The questions of interviews asked about teachers' opinion on how to differentiate the content, process, product, assessment and consider students' diversity in their lessons.

Gulzat stated that for her first and foremost differentiated instruction "…is a way to get students interested in learning" through a variety of engaging methods and techniques. She viewed the diversity of students as their ability to perceive the lesson and content differently due to the age peculiarities. Furthermore, she highlighted that "support and more detailed explanation" could be necessary considering students' abilities to perceive the content in a different manner and pace.

In Gulzat's understanding, the content, which is the amount of knowledge taught to students, should be differentiated due to two facts. Firstly, it was highly likely, that students would be bored and discouraged to study should the content be presented "…in the same, monotonous way". Secondly, Gulzat emphasized that content needs to be adapted, because "teaching in the same, traditional way contradicts the demands of the

modern education; it will be tedious and repetitive". Therefore, she suggested for example to "choose only the main points", which is to adapt the content, to provide more effective perception of the content by every student in the classroom. Also, she mentioned giving more differentiated homework as an essential part of differentiation of the content.

In Gulzat's point of view, differentiation of the process, which is a skill learning procedure, depended on the type of lesson. For example, if it was an experiment lesson, she "first gives them [students] instructions, only after that allows them to start working". She said that follow-up questions were essential to be asked to check whether students understood the lesson. Gulzat found it necessary to support learners to differentiate the outcomes of their works through innovative educational techniques.

Participant Gulzat agreed that students need to be provided with a variety of methods of successful presentations of the product, or what students can demonstrate as the result of their learning. For example, "as I teach Biology, after each unit is covered, students can do a project". She further emphasized that teachers have to give students autonomy in choosing the form of presentation. For example, "I give them the task; they are free to choose the form of their presentation for the final product".

Assessment or a process that allows seeing what outcomes students have achieved throughout their learning is one of the important elements of teaching and learning. Gulzat emphasized the significance of differentiated assessment and was willing to give students a better grade based on his/her diligence and industriousness. In other words, when it came to summative assessment and a particular student was for example "between marks 3 and 4", teachers might want to take into consideration this student's attitude to learn and improve his or her grade.

Also, it was crucial in this research to examine participants' views on what other categories they would add in their classes to make the differentiation process more meaningful and effective. Gulzat mentioned that the pace of how fast or slow students could perceive the information could be a significant element that should be incorporated in the differentiated classroom. Also she shared her concern on the moral aspects of differentiating students by readiness level. As stated, "…by giftedness…differentiating students is not always a good thing to do. …. But high-achieving students should help low-achievers". At the same time Gulzat seemed to contradict herself as she further said: "I would differentiate based on abilities and the way of perception of the content". Also, Gulzat thought that teachers should employ differentiated instruction at least once a week. She further stated that if teachers "want to avoid boredom at the lesson; you need to use different methods, differentiated instruction included".

Gulzat positively responded that students should mostly be differentiated by readiness, which is understanding of students' current position in regards to specific unit of knowledge. However, researcher could see that Gulzat was in fact referring to students' ability level. For example, in the interview she said: "I mean strong students need to support and help a weak student while a less able student has to try to catch up with a high-achieving student." Also, during the lesson observation, researcher noted that she formed students in groups based on their abilities: high-achieving students mixed up with low-achieving students. Gulzat agreed that it was right to differentiate students mainly be their readiness level; she admitted that it was also unethical as it "make some students feel special to one another". And yet, she differentiated by ability. The reason for such contradiction could be Gulzat's misinterpretation of the concept of readiness. In her understanding, readiness is to differentiate students by their ability to perceive the content. Gulzat seemed to miss a point of readiness where teacher's aim is to help both high and

low achieving students to move towards particular knowledge or skill and did not leave some of them to be in the same place. Also, she pointed out that the issue would depend on the type of task. For example, if it was an Olympiad preparation “differentiation by ability level totally works”. Along with this, she stated that strong students needed to support weaker students.

A conclusion can be made that Gulzat’s beliefs in differentiated instruction are mainly shaped by her personal beliefs to teaching mainly based either on ability level of their students or following some elements of what differentiated instruction is in their understanding.

4.3.3. Gulzat’s practice of differentiated instruction

According to Gulzat, first and foremost differentiation of the process should be done in an engaging way, so every student will be interested in the content and would not “get bored”. Moreover, she argued that “teaching in the same, traditional way” would go against the demands of current education. In her own practice, as a Biology teacher, she would prefer presenting content in a more practical way, for example running experiments. She mentioned taking students to field trips as another way to differentiate the content to reach out to more students. Also, in her opinion, adapting teaching materials would be another valuable contribution to the differentiation of the content.

In support of her opinion, during lesson observation, it was noticed that she employed two ways of differentiation of the content: first as a PowerPoint presentation, then in a more empirical style, -through conducting an experiment. Moreover, she adapted the content to the level suitable for mixed-ability class: from more advanced tasks to easier ones. Hence, Gulzat’s responses in respect to the experience of differentiated instruction went in line with techniques she employed in her practice.

The researcher could not find any differentiation of the process in Gulzat's lesson or course plans. According to Gulzat, she never needed to make differentiation as a part of lesson plans as she had always known the level of every student and had various tasks prepared beforehand.

The researcher was eager to observe the differentiation of the process. During lesson observation Gulzat tried to differentiate the process by breaking students into groups. As she shared with the researcher after the lesson:

> If the materials are too difficult to understand individually, I have students work in groups. I mean, as they cooperate, learn from each other when working in groups, they can find a solution together. If the level of the task does not seem to cause any problems to work individually, they work independently.

As evidence, during the lesson observation, Gulzat provided her students with very precise instructions. As a result, students managed to successfully complete the experiment. Also, Gulzat preferred to form groups according to ability levels. In other words, she ensured that there was at least one high-achieving, one mixed-ability, and one – low achieving student in each group.

During the lesson observation, Gulzat was very specific with assessment criteria for the experiment students had to conduct while working in groups. She created specific criteria to be followed in order for the experiment to be done successfully. Also, at the end of the lesson Gulzat handed out flashcards to every student to evaluate other students' contribution to work as a team member. Analysis of lesson and course plans showed some rubrics for project and presentation work. Her lesson plan included specific features of differentiated assessment of students' work for running an experiment and how to evaluate each team member. That is to say, in her lesson plan she indicated specifically how high-achieving students would assess low-achieving students. Although Gulzat seemed to restrict the differentiated assessment to ability based learning that could still be considered

as differentiated assessment as she took into accounts students' ability to learn and process the information. Although this approach can be viewed as legitimate, ability-based grouping does not often allow teachers to consider other types of groupings. For example, students can be grouped based on their preferable ways of learning, or learning interests, or intelligence preferences which would meet needs of all students more successfully.

Interviews and classroom observation showed that Gulzat used effective teaching strategies, practical activities such as experiments as well as ability based learning which indicates a mixed success in applying differentiated instruction..

4.4. Case Four: Teacher Sandu

4.4.1. Sandu's self-efficacy

Teachers' personal and professional confidence greatly impacts on their willingness to perform new tasks. Consequently, participants were asked to evaluate their self-efficacy level based on Bandura's self-assessment survey (2006, p.213). Sandu felt fairly confident, at 86 points, in her abilities to embrace and perform any new tasks (see Appendix F). To be more specific, Sandu rated her ability to accomplish any new tasks successfully and handle new circumstances effortlessly with 90 points out of a hundred (see Appendix E). She was also certain in her capability to cope with any difficulties on her way to achieving her goals and would not allow her low self-confidence to make her quit new tasks she would like to try. However, Sandu felt ten points less certain in her abilities to face new challenges. These findings did match with the participant's responses obtained from the interviews. For example, Sandu noticed that teachers' self-efficacy could relate to their beliefs of differentiated instruction and in one way or another impact on their methods of teaching. Interestingly, even though researcher was interested in Sandu's opinion, she tended to generalize her answer and talk about other teachers rather than herself. She stated that

"people have to believe in their abilities to perform any new tasks", otherwise "there might be a risk that teachers with low self-efficacy will likely use the conventional way of teaching. That will lead to route learning, memorizing but will not allow thinking critically".

As for Sandu's self-efficacy in differentiated instruction, her self-assessment reached 89 points out of 100 (see Appendix H). Sandu also demonstrated a fairly high self-efficacy, 90 points in her understanding of the concept of diversity; differentiation of the content, process, readiness and differentiation of instruction (see Appendix G). Indeed, during the interview and lesson observations the researcher noted Sandu's high degree of expertise in regards to differentiating the process and diversity which will be described in the following section.

Also, the researcher was interested in learning about the relationship between the teachers' self-confidence and eagerness to implement innovative teaching strategies, particularly differentiated instruction. For example, Sandu underlined that teachers' professional passion for the subject in regards to his professional development could be the link between how confident teachers feel towards differentiated instruction: "When a teacher loves what he is doing, values the subject he teaches. In my case, maybe because I underwent special training programmes, I am pretty confident that I am able to successfully implement differentiated instruction, which I am already doing."

As it can be seen, Sandu demonstrated a high degree of both perceived and differentiated instruction self-efficacy which was reflected in her practice.

4.4.2. Sandu's perception of differentiated instruction

In her major study, Tomlinson (2014) describes differentiated instruction as a classroom where teachers manage to use the time flexibly, use a wide range of

instructional strategies, recognize students' identity, tend to adapt curriculum to meet the needs, employ formative assessment to help students achieve the goals. Mirroring this definition, Sandu described differentiated instruction as an: "… individual approach to every student, identifying his readiness, finding specific methods suitable for every learner, i.e. teaching according to students' age peculiarities, level of knowledge, cognitive activity, interests… This is differentiated instruction in my understanding."

Also, the researcher was interested to learn Sandu's opinion with respect to the concept of diversity. Sandu related the different approach to students' diverse knowledge background as "they [students] come to study here from different schools". Furthermore, she referred to students' motivation and interest in particular subjects as one of the main characteristics of learners' diversity in the classroom. Sandu said that students' differences in ability to perceive the information and process should be important for a successfully differentiated classroom.

According to Sandu, differentiation of the content, that is a specific unit of curriculum, should be done thoroughly and take into account several variables: "It is important as the students differ according to the readiness level, age peculiarities, even the way they perceive the content makes difference. For example, in the same class you can find a gifted child, or a child with leadership potential."

Sandu emphasized the significance of readiness of students and their age specificity in mixed ability classrooms. Furthermore, she mentioned employing multiple level tasks in the process of differentiating the content and emphasized that it was "imperative to give "levelled" tasks, from easier to more advanced level".

Findings showed that in the differentiation of the process Sandu found using group work very important as it was one of the demands for teachers who went through

professional development programmes as did she. As she explained, “especially teachers who went through professional trainings we have to get students working in groups”. When researcher asked why the group work was important for differentiated instruction, Sandu called attention to mixed-ability groups where high-achieving students would give a peer support to less advanced students. Also, she mentioned a high quality performance of students who are placed in groups based on same interests or learning modes. For example, students who learn better through visuals work more effectively if they paired with other students of the similar learning modes. However, Sandu called into attention not to restrict forms of work to only a group work, but also use pair and individual types of work as well. She said: “For example, when we give instructions, we tell students to think first individually, and then share with another student. After pair work, they form a group and share with group mates.”

Differentiation of the product or the outcome of learners’ achievement is one of the main elements of effective differentiated classroom. Sandu found the strategy of using role-plays beneficial to meet the needs of diverse students’ population in the classroom. To be more specific, Sandu highlighted the importance of using strategies such as “project-based learning, mini-projects, role-plays” as well as presentations. Additionally, she recommended taking advantage of technologies and using appropriate websites to assist students in presenting the results of their works.

Sandu mentioned that it was important to differentiate the assessment, especially for teachers who were “teaching grades where the upgraded syllabus is being used”. Upgraded syllabus is a new curriculum being introduced in all secondary schools across Kazakhstan. According to Kazakhstan’s Ministry of Education and Science, all teachers have to partake in trainings in order to be familiar with the requirements of new curriculum. Sandu mentioned it was compulsory for teachers who participated in special

training courses to implement differentiated instruction in the updated curriculum. As Sandu stated: “I can say that in our everyday lesson, we mostly use formative assessment.” The role of summative assessment was even greater in relation to differentiated instruction as “… the tests are created by considering particular criteria, scores. It is already differentiating as we assess every student by their writing skills, speaking skills differently”.

In Sandu’s understanding, levelled activities could play important role in the differentiation of instruction as well as other elements. For example, “the level of knowledge, level of their (students’) interests, level of their attitude, outlook, etc”. She also brought the matter of diverse educational background into attention. That is to say, students come to her school with different level of knowledge which may impact on their motivation and willingness to study.

As for differentiation based on the readiness, Sandu did not find that kind of differentiation correct. To be more specific, she would rather differentiate by students’ learning profiles or learning styles. For example, she pointed out that differentiation could also be done by students’ abilities to be at some things better than at others. She stated: “Along with knowledge, we need to consider students’ abilities. For example, in group work, they can practice their art skills and draw something on poster like a diagram or chart. Teachers need to know how to access students based not only on their knowledge, but also on other skills, like drawing.” The researcher noted that Sandu seemed to consider ability and readiness as synonyms and put more focus on ability based learning and teaching. During the interview Sandu never mentioned that for less advanced students gaps in a particular segment of knowledge was a temporary state that would close as soon as those students reach the necessary point. Lesson observations showed that she did not do much to help low-achieving students to identify the gaps, adjacent them and move forward.

4.4.3. Sandu's practice of differentiated instruction

One of the questions of this study concerned teaching experience with differentiated instruction and strategies employed by the participants in order to differentiate content, process, and learning outcomes for their students. In the process of interview Sandu shared that differentiation of the content, which is a specific segment of curriculum students need to perceive. She said that differentiation of the content was important due to their diverse educational background: "In our school we have students with diverse background because they come to study here from different schools. Therefore, even their motivation or interest to other subjects can be different."

Moreover, Sandu emphasized the need to use tasks of different complexity to be introduced when differentiating the content. As a matter of fact, during the lesson observation, Sandu did differentiate the content based on students' capabilities to perform the tasks. It was a practice lesson of Kazakh language where she prepared materials at varied readability levels and utilized targeted small group instruction. Also, she adopted other materials to help her to apply the key ideas in the classroom. Although Sandu mentioned the importance of developing students' interest to learning the subject, it was not reflected in her course documents. During the observed class Sandu did not use video or audio aids that would meet the needs of specific group of students. Nonetheless, the analysis of lesson plans demonstrated the consistency of the aim of the lesson and the content that was presented at the lesson. Also, Sandu' course plans included the differentiation of the content in every unit. For example, she labelled the tasks as the highest complexity and as the moderate complexity tasks.

With respect to the differentiation of the process, Sandu paid attention at allowing students to choose the language of instruction. During lesson observation the researcher

noted that Sandu created a comfortable environment where students felt free to switch from one language to another. Also, Sandu differentiated the process by students' ability to perform the task. Researcher noted it was the ability based approach, not the readiness based because Sandu did not provide low-achieving students with scaffolding models that would help learners to finish easy task and move to more advanced. That way struggling students would be able to close the temporary gap in their knowledge and be in the line with other students. As for the lesson plans, teacher Sandu described differentiation of the process in details in her lesson plans and also included differentiation of the process in some units of her course plans. However, differentiation in her lesson plans was limited to ability based approach.

Lesson observation showed that Sandu indeed used various assessment practices. She divided students into three groups and every time a particular group achieved positive results, she awarded them with stickers. Also, when she asked students to evaluate other groups' works, Sandu provided students with instruction how to do it in a more positive way. Hence, she created a positive atmosphere in the classroom where students felt safe to share their opinions and managed to create a constructive evaluation system for every student to successfully appraise each other works.

Analysis of course and lesson plans showed that Sandu described in details every step of differentiation the assessment process. She created descriptors and rubrics, and provided students with information on how their works will be evaluated. Moreover, her course plans also contained a detailed description of formative and summative assessment.

Overall, it can be concluded that Sandu applied strategies and approaches of differentiated instruction in her lesson. She engaged students in the learning process

drawing on their learning needs, learning styles and preferences while at the same time using ability-based teaching approach to differentiated instruction.

5.5. Case Five: Teacher Jazmine

5.5.1. Jazmine's self-efficacy

Jazmine rated herself with 85 points of perceived self-efficacy in her abilities to perform any new tasks (see Appendix F). To be more specific, participant Jazmine was absolutely, 100 points certain that she would work hard to achieve the goals and work hard to solve a problem and also 90 points confident in her ability be ready to always achieve the goals she set (see Appendix E). These results seem to agree with her point of view:" …there is always room for improvement, though he or she fails the first time, the second time, but I believe we should learn from every failure." Jazmine rated her ability to face challenges with 80 points which could be considered as an indicator of high degree of confidence too. Researcher The researcher noted that she did not seem to mind the challenges. As Jazmine said: "We should be challenged to become better in profession, or a better leader. Because teachers are also leaders, they should be models of not giving up, but to encourage themselves not matter what happens".

Also, Jazmine evaluated quite highly, with 70 points, her ability to easily handle difficult situations (see Appendix E). Later in the interview she said" If you have a high level of self-efficacy, you have the willingness to improve,…it really affects how you teach students."

Another purpose of the study was to examine participant's level of self-efficacy in regards to differentiated instruction. Jazmine rated herself with the highest level. Her average overall self-assessment was 93 points (see Appendix H). For example, to be more specific, Jazmine was the most confident 100 points in regards to how to differentiate the

process and content, and by 10 points less certain in her ability to differentiate the instruction, product and the nature of differentiated instruction itself (see Appendix G).

Jazmine viewed the high level of teachers' confidence and a desire for professional development as the main characteristics that could impact on their willingness to introduce differentiated instruction in their classrooms:

> Yes, of course, if you have a high level of self-efficacy, you have high level of confidence, self-esteem, you have willingness to improve yourself, and you always have the room to make the very instruction or lesson that you do become better each day. And it really affects how you teach the students. So, the higher your self-efficacy, the higher is your willingness to become a better teacher for your students.

Furthermore, Jazmine claimed that it was imperative for the educators from the very beginning to have clear aims to achieve positive outcomes with differentiated instruction: "So, the teacher should know where to begin. I think, it will be very effective if you start differentiated instruction at the very beginning, at if you do it right, you will end it right."

When the researcher asked Jazmine about the relationship of teachers' self-efficacy and the impact it might have on teaching methods, she did not seem to be eager to elaborate her answer. Although she did confirm that there could be a connection between those two variables.

To sum up, Jazmine thought the higher level of perceived self-efficacy would inevitably impact on teachers' confidence in professional area. Also, being consistent and determined with implementation of the differentiated instruction was an important condition for Jazmine. That is to say, successful implementation of any new educational strategies, including differentiated instruction depends on teachers' determination to continue with it till the end. Teachers cannot quit even if the implementation will not be effective, they need to persevere.

5.5.2. Jazmine's perception of differentiated instruction

Jazmine related differentiated instruction to using a variety of effective teaching methods which might later lead to collaborative atmosphere between learners and teachers. The following quote showed her opinion that: "…it [differentiated instruction] would be the process of instruction where you are going to effectively teach students. And there should be cooperation between students and teacher and of course it includes the methods of teaching to effectively allow the students to learn the lesson."

Next, the researcher asked Jazmine to describe her perception of student's diversity in the classroom. Jazmine said that finding different approaches to every student was an important condition to ensure that the diversity occurs in the classroom. Jasmine mentioned that students might be diverse "in behavior" and "of course some students have different pace and of course it will affect the behavior or an attitude in every activity". Jazmine emphasized the importance of differentiating the content. She said: "Yes, it is important. I do that and if ever it will not match the level of the students, then I ask them to as much as possible do it by themselves, using dictionaries." Hence, Jazmine raised an important aspect of differentiation of the content, which was students' independent and autonomous learning. As she said: "I do not spoon-feed the students; I do not allow them always ask me, they should learn how to depend on other resources, not just on a teacher."

The researcher was also interested in Jazmine's perception of the differentiation of the process, which are activities helping students to use their skills. Speaking about that, Jazmine drew attention to the importance of using multiple level tasks and considering students' level of readiness: "If the lesson is a little bit easy for the student, then you have to add some more examples and some more activities. And if it is too hard for the students, then you have to make another activity that would meet their needs and their skills as well." Although Jazmine connected multiple level tasks with student's readiness, she did not mention how she made sure that students fill in their gaps in particular knowledge and

catch up with other students. Therefore, researcher concluded that Jazmine appeared to confuse readiness with ability.

Interestingly, Jazmine underlined that students' skills to work independently should be developed in the process of differentiation. She insisted on not "to allow them [students] to be stagnant in their learning. You need to add some more hard questions and let them be able to do it also by themselves by giving some homework."

Also, Jazmine spotlighted the importance of developing students' skills to work autonomously in regards to differentiation the product that is the outcome of students' learning. To be more specific, if she noticed that her students were struggling, Jazmine would "encourage them to use more, to learn more vocabulary, I will encourage them to do more homework, and I need to check if their home works are done well or not". Also, Jazmine suggested that individual approaches to low-achieving students would contribute to meeting those students' needs.

Jazmine believed that differentiated assessment "is the core of differentiated instruction because without assessing the students …the learning you are getting from the teacher will be lesser than you expect, or the management will expect". In other words, students' academic performance is likely to decrease if the assessment is not differentiated. However, there seemed to be some confusion in Jazmine's responses regarding the assessment in general and differentiation of assessment. The reason was another point she brought up. She mentioned that management, i.e. school administration would also expect to see students' grades meaning not differentiated, but overall assessment of students' academic performance. That is to say, the school administration would be more interested in marks students receive in summative assessment and less eager to know about the progress of formative assessment.

In Jazmine's view, the teacher decided when to apply differentiation in the classroom. For example, "It is very important to do differentiated instruction at the beginning, maybe during the first term, and if you see there are improvements, then of course you know that you still need to do that next term or not, but if you know that you need some more improvements, then, you still need to do that every now and then". In other words, Jazmine saw differentiation as a tool to identify gaps in students' progress and which would happen occasionally rather than as an instructional approach which met the needs of diverse students' population in class.

Regarding more categories Jazmine would be willing to include them to make the differentiation more successful, she insisted on considering student's learning styles as "some of the students are skillful in writing, others in reading; others are good in speaking, but not so good in writing".

Jazmine's view on the importance of differentiation of instruction was related to students' abilities to perceive the information in a different way. As Jazmine said, "of course it is because the students have different understanding and they have different abilities as well."

Jazmine insisted that for mixed-ability classroom it was essential to find a specific approach to make the instruction both understandable and varied. As she mentioned:

> Some of the students are beginners, some are a little bit of intermediate, and there are rare students who are advanced, so the teacher should know how to differentiate the instruction for her or him [students] in order to be able to make a daily lesson that is effective for each of them [students]. However, we cannot really separate them because they are in one class. So, the teacher should know how to approach the students.

As data shows Jazmine associated differentiated instruction mostly with ability based learning and providing conditions for students to develop their skills of independent

learning. She seemed to understand the concept of readiness, yet her focus tended to shift to ability based learning,

5.5.3. Jazmine's practice of differentiated instruction

Identifying teachers' practices of differentiated instruction through lesson observations and documents analysis was one of the main purposes of the study. The researcher's aim was to observe the differentiation of the content, process and assessment in action. Jazmine emphasized that differentiation of content first and foremost should be employed through varied multiple level tasks and range of materials. She also highlighted the importance of developing students' skills in working independently, or avoiding to "spoon-feed the students".

Data from a lesson observation and analysis of documents confirmed Jazmine's words in action. The English language lesson observed for this research was a review of content lesson the aim of where the aim was to practice a range of vocabulary studied in the previous lesson. Jazmine mainly focused on the differentiation of the process by organizing pair and group work to practice vocabulary and speaking skills. She formed the groups according to their levels of ability. As she explained in after lesson informal conversation, she made sure that each group had at least one high-achieving student who would support low-achieving students. Moreover, she provided her students with a variety of extra materials such as dictionaries, and online resources to develop their skills in working autonomously. However, the differentiation of the content did not take place as in Jazmine's view, the content should be delivered in the same way to all the learners, and then they will have to work autonomously.

Jazmine, emphasized that differentiation of the process should focus on pair and group work, as well as independent studies. As the researcher noticed during the lesson

observation, the teacher divided learners into groups based on their ability level and gave them tiered activities. Those who were the first to finish the tasks successfully then were put into pairs with less advanced students as a peer support. Most importantly, Jazmine indeed tried to avoid "spoon-feeding" and concentrated on supporting her students with directions on how to work independently. Analysis of lesson plans did not show any differentiation being included in the documents. During a follow-up conversation after the lesson observation, the researcher asked Jazmine why she did not include differentiated instruction in her lesson plans. Jasmine said: "There is no point in doing that. I know all my students' strong and weak points; therefore I do not always include differentiation in my lesson plans."

Overall, it can be concluded that Jazmine would rather differentiate the process through groups according to students' ability. Also, she saw the differentiation of the process to be more effective if students work independently.

6.6. Case Six: Teacher Duken

6.6.1. Duken's self-efficacy

Individual's perceived self – efficacy is likely to impact on the quality of performance in any area. Therefore, identifying a probable connection between participants' perceived self-efficacy and their willingness to introduce any new activities in their practice was one of the aims of the study. Duken assessed his degree of perceived self-efficacy at 53 points, much lower that other participants had rated themselves (Appendix F). To be more specific, Duken felt moderately, 50 points, certain in his capacity to successfully perform new tasks, face new challenges, work hard in order to find a solution. Moreover, he was by 10 points less confident in his willingness to always try to

achieve the goals he set (Appendix E). That finding could be a result of Duken's doubts in immediate effectiveness of new educational approaches. Duken said:

> It is not possible to be ready to embrace something new immediately. I can't say I can do this at once…. or I will be successful with that. I mean there has to be a place for some reasonable doubt. I put 40 points because until I try it myself, I am not ready to face this task, I do not believe in it yet.

Duken's level of self-efficacy in differentiated instruction, unlike his perceived self-efficacy level, progressed significantly. If his degree of personal self-efficacy showed a level of around 50 points in regards to all the aspects, with his confidence in regards to differentiated instruction it showed an overall upward trend, with 75 points overall (see Appendix H). However, Duken's degree of self-efficacy in differentiated instruction seemed to be varying from aspect to aspect (see Appendix G). For example, Duken demonstrated a rather strong confidence, 100 points in his experience how to differentiate the content and process and absolutely understood the concept of readiness. However, he was the least confident, by 50 points, in his capacity how to differentiate the product and instruction, but by 10 points more certain in regards to differentiation of the process. Indeed, during the lesson observations researcher noted that Duken behaved highly confident when differentiating the content by considering students' learning preferences and differentiating the process by having students to work in pairs, mini groups and individually.

Additionally, Duken shared that for teachers to be successful with the implementation of differentiated instruction from the first steps should not be an obligatory condition. As he said: "I personally think that to be very successful with differentiated instruction from the very beginning could be challenging. I am sure that I am not ready or confident to implement differentiated instruction immediately."

Interestingly, Duken emphasized the importance of introducing educational changes that would fit into the unique system of our national values. In other words, not all teaching innovations were to match the unique traits of Kazakhstani education system and they needed to be considered carefully before being accepted. Also, Duken emphasized the significance of gradual implementation of new educational approaches. Rather, those changes were to be thoroughly considered and then accepted if proven to be effective to meet the needs of all learners:

> It is worth trying as it will at least help our students to be more adapted to the demands of modern world, but it should be done in a timely manner, not in a hurry, just for the sake of declaring that we are trying something new. The second thing is we need to keep in mind the fact of national mind set and national values. I mean not every country is ready to open up and embrace something new. We do not have to be like other countries and simply do or copy what they are doing.

Duken's case shows that teachers' self-efficacy' self-assessment might not impact individual's capability to cope with performing new activities. Although Duken rated himself moderately confident in both personal and differentiated instruction; his results given in the survey seem to be consistent with answers obtained from the interview.

6.6.2. Duken's perception of differentiated instruction

Duken underlined that students' readiness level was to be the main characteristic of differentiated instruction and associated it with "…giving students tasks based on the knowledge level, i.e. from the most difficult to the easiest ones". That finding showed that Duken seems to confuse the readiness, which is students' temporary gap in the knowledge, with the ability-based learning.

Duken mentioned students' ability to perceive the information, age peculiarities, pace, differences and thinking styles as necessary conditions to create diversity in the classroom. Duken emphasized that "tasks should be systematic, peculiar and appropriate to

the level of students. Otherwise, it creates difficulties nowadays as some students perform the tasks fast, some do slowly".

Duken pointed out to the importance of applying multiple level activities to differentiate the content, or a particular section of curriculum. Additionally, he gave prominence to finding a special approach to every student in a classroom with students who are at different level of readiness. He said that "high-achiever might understand the content very deeply whereas the low-achieving student might only comprehend the minimum standard. However, the fifteen students can be given more complicated tasks or materials and low-achieving students can receive only that level of content they can understand". Although Duken referred to the importance of providing students' with challenging tasks, he did not seem to mention teachers' or peers' support that would help low-achieving students to close the existing gap in their knowledge or skills. One unanticipated finding was that, in Duken's opinion, teachers should not feel free to completely differentiate the content. As he stated: "If we want to do it, we need to remember that Common Core Standards can be changed only by 10-20%. If we want to change it, or we want to differentiate we might do it outside of classroom or insert it in the classroom, but only as elements".

In regards to differentiation of the process, that is the way students learn, Duken's noticed that "differentiated tasks can be done in groups as well as individually….it depends on teacher's style of teaching, methods". Moreover, he stated that teachers could vary forms of work. For example, they might go "from individually to pairs, or backwards from pairs to groups, then to individual form". Also, in Duken's opinion, even the questions should be asked with taking into account students' level of knowledge: "If it creates problems for a student, a task can be done in pairs. Difficult tasks can be analyzed and

discussed in pairs. The pairs form groups, the tasks are discussed in groups, and the solution can be found cooperatively, in groups".

As for the differentiation of the product, or supporting students in presenting the results of their learning, Duken put accent on peer support and collaboration. He said:

> …It is important to remember that high-achieving students should not be so much involved, because we need to encourage shy and low-achieving learners, give them chance. For example, I tell them in the process -Asan, Usen you are not going to present your work today, other students will talk. The reason, as I said, to give chance to shy, less motivated students to share.

Here, the researcher noted that Duken might be misinterpreting the concept of differentiation of the product as he seemed to prefer low achieving students to be more involved and have high achieving students to be distant from participating in the presentation of learning outcomes. That unexpected result could be connected to self-efficacy section when Duken showed his uncertainty in how to differentiate the product.

Researcher noted that Duken seemed reluctant when discussing the issue of assessment in a diversified classroom. Duken shared his concern with formative assessment being implemented with upgraded syllabus, which is a new curriculum reform being recently introduce in Kazakhstani schools. As he said: "In my personal view, over the time this assessment might work. On the other hand, there are still issues with assessment; it even could be one of the major issues."

Further, he compared former, 1-5 scale type of assessment with formative assessment. In his opinion, although old assessment system was far from being perfect, and "some teachers might have taken an advantage of it at some point, because they used it as a punishment tool" there were some benefits of that system too. For example, "students had to study better because they knew they would be graded at the end of every lesson. And to some extent, I agree with this, because that assessment system was working". Duken found

more disadvantages of a new assessment system and shared his concern about its ambiguity:

> …I mean there are some cases when students who have been actively participating during the lesson, positively responding to formative assessment; they somehow begin to struggle when it comes to do test, or some other form of assessment. On the contrary, students who seemed to be indifferent to formative assessment…they often show if not 100%, but at least 80%.

Interestingly, despite his reluctance to use new teaching approaches in his practice, Duken turned out to be a proponent of the view that differentiation should occur frequent in the classroom:

> Well, in my understanding differentiation is related to analysis, so it should be implemented at every lesson. It can be in the beginning of the lesson, at the end of the lesson, depends on teacher's skillfulness. In general, it should be done at the end of every lesson, I mean self-assessment. Students' opinion, for example, at this point could be wrong, but at least it is his opinion. We might not even notice that we already implementing differentiation in class. For example, questions like "What do you think…?", "Why do you think…?", "Do you think it is right or wrong?" etc".

As for the other categories that could be added to enrich the differentiation in the classroom Duman said "one of the ways to differentiate is their creativeness. I mean in the creative direction". As he further explained, differentiation of students' creativity might depend on their preference of subject, or giftedness:

> I mean, some students might be the best at any area or subject, they are gifted. For example, some are good at Math, do sums fast. However, when it comes to Humanitarian subjects, this student is likely to lag. Some, who are good at Humanitarian subjects, might struggle with Math. Therefore, you know we have been adapting some ideas from European educational framework. So, we can sue these borrowed elements as creative tasks. For example, depending on the topic, students may do independent research…. some (students) are good at Art, others might be better at Music; the thirds ones may even write poetry.

Also, Duken accentuated that differentiation of instruction should be related to developing students' practical skills. In other words, "differentiation instruction in the classroom is very important because, like I said, for children to be able to adapt themselves to real life's

demands. Here, for History subject, as well as for other subjects, they know all in theory, but cannot demonstrate their skills in practice".

Overall, it can be noted that despite his cautious attitude towards implementation of innovative educational strategies, Duken showed his capability to use differentiated instruction in his practice. Nonetheless, he seems to need some support on expanding his knowledge in effective differentiation of the product and assessment.

6.6.3. Duken's practice of differentiated instruction

Due to ethical considerations, researcher only observed how teacher differentiate the content, process and assessment and excluded differentiation of the product as it would involve students. During the observed lesson, Duken underlined the importance of ability-based teaching when more advanced students should be given more challenging tasks whereas less advanced learners "can only receive that level of content they can understand". Data from the interview showed that Duken did not find describing the process of differentiation of the content necessary to be included in the lesson plan:

> Sure, it can be a part of lesson plan. I, personally, make differentiated assignments beforehand and bring them to class, but not necessarily include it in my lesson plan. For example, if I see that some students are struggling with the assignment, I can give them the prepared tasks as well. I have a list of students who I think will need some support, therefore, I do not describe the differentiation in the lesson plan thoroughly, because I already know the names. I have a file of tasks I give to students who might struggle with understanding the topic, I have list of names of these students, thus I don't need to include differentiation and describe it in details as part of my lesson plans.

Course plans did not demonstrate any differentiation being included either. From the lesson observation, it was noticed that Duken mainly differentiated the content based on students' learning profile and readiness. To point out, he used a video and then gave his interpretation of the content. Hence, he used varied teaching modes such as verbal, visual, practical.

Also, Duken pointed out to the importance of using the tiered activities and considering the language of instruction as well. For example, Duken created activities for mixed-ability class and was responsive to students' needs when they wanted to switch languages, from Kazakh into Russian. Duken organized expert groups with high achieving learners and interest groups which consisted of students who were dealing with less challenging tasks. Hence, Duken demonstrated a high level of confidence in how to differentiate the process. That finding went in line with a high degree differentiated instruction self-efficacy Duken revealed in self-assessment survey.

Duken concurred that assessment had to be differentiated and that formative assessment that teachers are supposed to employ according to the demands of the current upgraded syllabus was already a part of differentiation of assessment. However, his main concern was in respect to students' attitude towards current assessment system as students did not need to be evaluated for every lesson. That, in his opinion, may lead to students' unwillingness to study diligently.

As for the differentiation of assessment during the lesson observation, it revealed the following information. Duken used stickers to evaluate group works, as well as oral appraisal for individual responses. Nonetheless, researcher noted that assessment was not differentiated in the full sense of the approach. Duken used stickers for evaluation of everyone's contribution, not considering students different learning modes. Also, analysis of lesson and course plans did not show any presence of differentiation of assessment. In a follow-up interview Duken shared that he never differentiated the formative assessment as children did not seem to be excited about it, therefore there was no need for differentiation of assessment.

Overall, findings showed that participant showed a tendency to misinterpret the concept of differentiated instruction when he mostly related it to ability-based approach using multi-level tasks assigned to high-achieving and low-achieving students.

Convergent and divergent observations about six cases of differentiated instruction

The chapter presented the main findings collected from Bandura's self-efficacy assessment survey, interviews and follow – up informal conversations with research participants, lesson observations, follow up interviews and document analysis of course and lesson plans. In regard to the self-efficacy assessment survey, it was revealed that teachers' perceived self-efficacy might impact to some extent to teachers' level of confidence in their willingness to implement the differentiated instruction. Also, findings revealed inconsistencies between teachers' self-efficacy in differentiated instruction and their perception of the nature of differentiated instruction.

Although some teachers showed a high level of confidence in regard to what they employed as differentiation, their understanding and practice did not always match with the character of differentiated instruction. As for the set of questions about understandings of differentiated instruction, it was found that while some participants perceive it as a way to engage students in the learning process drawing on their learning needs, styles, and preferences and also considering their age and emotional and psychological traits, others use ability-based teaching approaches to differentiated instruction.

Participants seemed to prefer using ability based tasks rather than creating tasks according to students' readiness point that would help students to detect the knowledge gaps, fill them in and move forward.

The collected data concerning teaching practices showed that teachers use different strategies of differentiated instruction in their lessons. However, due to a lack of understanding of differentiated instruction consistent with the normative concepts of differentiated instruction, differentiated planning and teaching approaches towards more effective practice of differentiated instruction are not promoted and employed at the research site with some participants. Nonetheless, it could be concluded as there were only six participants it was hard to say that one teacher was significantly outstanding compared to others. All participants showed similarities and differences at the same time. They all use some form of ability - based instruction in their approach.

Although each has some discrepancies from the best practice of differentiated instruction, they all are aware about the diversity of students and try to reach out to students. At the same time, there is an area for improvement which is to work towards improving the readiness of students to acquire more and more complex material and develop their higher order thinking skills.

The next chapter will discuss this study's findings engaging the conceptual framework literature more intensely.

Chapter 5. Discussion

The purpose of the study was to investigate how STEM and Humanities teachers' self-efficacy is related to their perception and their willingness to implement the differentiated instruction in their practice. The research findings in this chapter will be discussed in relation to differentiated instruction.

5.1. Teachers' self-efficacy

Research shows that the phenomenon of self-efficacy impacts greatly people's willingness to perform any new tasks or activities. The concept of perceived self-efficacy was first mentioned by Albert Bandura (1994) and described as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that effect their lives" (p.2). In other words, self-efficacy could be seen as a major instrument that may affect either positively or negatively on how individuals think or act under specific circumstances. Therefore, the study set out with the aim to investigate participants' level of personal confidence and self-efficacy in differentiated instruction.

Self-efficacy self-assessment showed that teachers rated themselves in similar ways on the overall self-efficacy and self-efficacy in differentiated instruction. In other words, a sense of self-efficacy can influence individuals' behavior in various ways. It may determine how much effort people will make to face challenges, how prepared and open they might be to make discoveries and even employ them in practice, how excited or frightened they can be in the face of endeavors or "recover their sense of efficacy after failures or setbacks" (Bandura. 1994, p.2).

As the data gathered from the survey and semi-structured interviews demonstrate, generally STEM teachers have higher perceived self-efficacy than Humanities teachers. However, no evidence in literature has been found to support the idea that the teaching

subject might be related to teachers' self-efficacy. Nonetheless, as there were only six teachers in the research, there might not be a place for generalization. Yet, the researcher noted a pattern that teachers with a high sense of perceived self-efficacy demonstrated similarly high level of confidence in regards to understanding and implementing the differentiated instruction. This seem to be consistent with Bandura's study (1994) that suggests people who usually are certain in their capabilities to effectively manage appeal complicated tasks see them as challenges rather than danger.

One unanticipated finding was that the working experience does not influence an individuals' level of perceived self-efficacy. For example, as the results of the survey and semi-structured interviews demonstrated participant Gulzat is one of the most confident teachers despite being a novice educator with only two years of professional experience. She demonstrated a high level of perceived self-efficacy and self-efficacy in differentiated instruction proving Bandura's theory that people as her "sustain their efforts in the face of failure…attribute failure to insufficient effort…approach threatening situations with assurance that they can exercise control over them" (1994, p.2). Another unexpected finding was that teachers' high self-efficacy appears to be related to the professional development. To be more specific, participant Sandu mentioned how significant it was for her to take part in professional development programmes to raise her level of professional expertise, hence her level of confidence in her abilities to perform differentiated instruction in her practice. This goes in line with the results of the research done by Dixon et al. (2014) who found that teachers who were trained in how to implement differentiated instruction in their practice in an efficient way, had more self-efficacy in their perception and willingness to employ the differentiated instruction in their practice. Interestingly, this finding coincided with the results of the study done by De Neve, Devos and Tuytens, (2015). In their research they discovered that beginning teachers' sense of self-efficacy can

be related to two factors: professional development, or as they called "teachers' professionalization" (p.27) and capability to work more autonomously. For example, participant Gulzat, a teacher with high level of self-efficacy, demonstrated that personal and professional self-development can impact on teachers' degree of self-efficacy. Based on the data obtained from the survey and the interview, it is apparent she is willing to modify content, product and process to meet the needs of her students. Moreover, she constantly develops her professional skills as well as participants Gulnar and Sandu, although in this case they are not beginning teachers.

The findings show that most of the participants demonstrated performance which can be described as mastery experience, one of four major sources of self-efficacy (Bandura, 1994). According to Bandura, for individuals who have developed a strong self-efficacy, some following failures do not seem to be of utter matter. This agrees with this study's findings. Findings revealed that five out of six participants were absolutely certain in their capabilities to face any challenges and keep continuing despite discouragements and failures. As participant Ahmat shared, failures might be caused by situational factors. In other words, if teachers do not put enough effort to try innovative educational techniques in their practice, or simply may feel exhausted, that would also lead to their reluctance to face new challenges. This corresponds with Bandura's (1994) construct of mastery experience which emphasizes that people's self-efficacy might depend on their behavior under specific situations.

It is a somewhat surprising result that teachers whose level of perceived self-efficacy was lower demonstrated higher self-efficacy levels in differentiated instruction. For example, findings show that participant Duken has demonstrated the lowest level of perceived self-efficacy. However, his self-efficacy in differentiated instruction is significantly higher. When analyzing the data, it can be suggested that his relatively slow

level of self-efficacy could be related to Tschannen-Moran, Hoy and Hoy (1998) findings. According to this study, teachers' self-efficacy cannot be restricted within perceived confidence to perform under specific conditions but also to the teaching context. That is to say, those educators are evaluating not only their sense of confidence; they are relating and assessing their self-efficacy to some specific aspects of pedagogical methodology. In the case of teacher Duken, findings showed that his level of self-efficacy might depend on his attitude towards the effectiveness of innovative educational approaches being implemented in his practice, its methods and even its necessity in general. In other words, teachers tend to first evaluate their present skills and abilities and then these outcomes will define their level of self-efficacy (Tschannen-Moran et al., 1998).

To sum up, the findings allow for the conclusion that teachers' self-efficacy assessment is related to their willingness to try and perform any new tasks in their lives. Survey and interview results show that teachers with higher levels of self-efficacy tend to be more open towards innovations and ready to set and face new challenges. However, one of the participants, who showed slightly lower level of self-efficacy in differentiated instruction, did not express strong devotion and readiness to new methods and educational approaches. As Bandura (1994) pointed out, when people have to cope with demanding tasks and they feel doubtful in their self-efficacy, they incline to act unpredictably, which impacts negatively on their level of performance. Contrary, those who preserve a strong level of self-efficacy are ready to set higher goals and accomplish them.

Also, interviews and classroom observations showed that despite the high self-efficacy of some participants, their practice demonstrated that there was room to expand their competence in differentiated instruction. That is to say, high scores on self-assessment survey were not accurate reflection of what was happening in the classroom. The issue of those inconsistencies will be discussed in the following sections.

5.2. Teachers' perception of differentiated instruction

A number of questions in this research study investigated teachers' perception and practices of differentiated instruction. It revealed that generally teachers' understanding of differentiated instruction's theory is in line with what a variety of studies has proved. However, data obtained from the interviews showed that participants see differentiated instruction more as ability –based approach. This approach tends to diminish students' confidence in their academic capabilities (Tomlinson, 2005).

When asked about what differentiated instruction was in their understanding, the majority of participants referred to what specific and individual approach teachers needed to employ to meet students' needs, readiness of students, age and psychological peculiarities. However, during the interview it was revealed that participants tended to misinterpret the concept of readiness and rather see it as ability of students. Also, educators underlined the importance of effective teaching methods to be adapted based on students' abilities, interests and ability to perceive the content in different manner and pace. This finding indicates an immediate relation to how Watts-Taffe, Broach, Marinak, McDonald Connor, and Walker-Dalhouse (2012) defined differentiated instruction which "…is not a single strategy, but rather an approach to instruction that incorporates a variety of strategies" (p.304). According to Tomlinson & Imbeau (2010)," in effective differentiated classroom students differ in terms of background experience, culture, language, gender, interests, readiness to learn, modes of learning, speed of learning…."(p.35). Findings revealed that students' various educational background, interests, learning pace and manner indeed were indicated by most of the participants as the main characteristics of the differentiated instruction.

It is interesting to notice that although most participants referred to students' interests and learning styles as the main attributes of differentiated instruction, they struggled to define them as learning profiles. This finding was somewhat unexpected as learning profile is considered to be an essential part of the differentiated instruction and researcher expected teachers to be familiar with specific terminology. According to Tomlinson (2014), a student's learning profile consists of four elements, such as learning style, intelligence preference, gender and culture. However, it has to be noticed that only a few of the teachers in fact mentioned intelligence preference in their definition of differentiation, but only in regards to the way students tend to perceive the lesson. For example, the definition teacher Ahmat gave, "way of thinking", matches with the interpretation of Sternberg and Zhang (2005) in regards to differentiated instruction. They underlined that the way students think "deal with preferred ways of thinking about material" (p.245) unlike learning styles which they refer to as the way students chose to learn the material. They also noticed that in most cases teachers have tendencies to confuse those two different terms: way of thinking and learning style. Also, findings showed that in some teachers' understanding, the nature of differentiated instruction was in adjusting the tasks according to the level of complexity. This finding seems to correlate with Tomlinson's (2000) description of the differentiated instruction. In her study she underlines that teachers ' support should vary as well as "task complexity, pacing and avenues to learning based on students' readiness, interest, and learning profile"(p.25).

As for the teachers' association of the differentiated instruction with the employment of a variety of effective teaching methods, several studies appear to have come to similar conclusions. According to them, first and foremost teachers should vary and adjust their professional attitude and teaching methods to create successful differentiated classroom (Alavinia & Farhady, 2012; Tomlinson, 2000; 2005).

According to Tomlinson (2014), one of the fundamental principles of the philosophy of the differentiated instruction considers diversity as "normal and valuable" (p.43). That is to say, every students' uniqueness should be seen as a benefit rather that complexity. Findings showed that most of the teachers related the concept of diversity with students' ability to perceive the content differently due to age, psychological, and individual attributes like behavior, pace, and readiness level. These results are consistent with that of Tomlinson (2014) who accentuated the significance of embracing the fact that not all children are alike. Moreover, she emphasized that teachers might play important role as they see that "some students need reassurance" (p.29) while others "respond much better to humour" (p.29), and the third group of students would rather seek support from peers than from teachers. Other studies also confirm the benefits of working in diverse classroom. For example, Mills et al. (2014) who emphasized the value of having diverse classroom. As they stated "…differentiation can also entail a recognition of the different knowledge that various students bring to the classroom, their differing skills, and their diverse interests and circumstances, and responding in ways that value these differences and use them to engage students in the work of the classroom" (p.334).

Another important finding was related to teachers' perception of differentiation the content. Findings show that some teachers associate differentiation of curriculum with changing its content. That makes them feel worried and be reluctant to do it. For example, participant Duken felt uncertain in regards to the modification of curriculum due to students' different readiness point. This seems to accord with the findings of Terwel (2005) who raised an important question of the impact differentiation might bring upon the curriculum. As he said, "High-achieving students benefit from being in a high track, while low-achieving students suffer from being in the lower track as compared to experiencing a common curriculum for all". Also, teacher Duken underlined that teachers should be

cautious when adjusting the content to meet the diverse needs of the students as it might go against the educational standard demands. In other words, teachers can be allowed to differentiate only the smallest part of the content. However, studies prove that "adjusting the content does not mean adjusting the curriculum" (Lewis & Batts, 2005, p.27). Similarly, Tomlinson (2000) accentuates that differentiation does not require the change of what to teach. Rather, it tells us "how to teach the same standard to a range of learners by employing a variety of teaching and learning modes" (p.4). This goes in line with what other participants' perception of the differentiation of content as most of them found adjusting the curriculum significant in differentiated classroom due to students' readiness level and age peculiarities. Moreover, majority of teachers stated that employing the ability based tasks as well as efficient methods to present the content could be significantly important for teachers' perception of the lesson. This finding appears to be in agreement with Tanner and Allen's (2004) findings which showed that "to reach diverse audiences of learners, science teachers must differentiate and diversify their own teaching styles and the pedagogical approaches" (p.200).

Also, participants were asked to identify their perception of differentiation of the process and the product. According to Tomlinson (2014), process describes activities teachers design to make sure that students are able to apply their knowledge and product is related to means students may use to present the results of their works. It is interesting to notice that overall both STEM and Humanities teachers put emphasis on grouping as one of the most common and effective ways to differentiate the process. However, STEM teachers insisted that their groupings should not be limited by ability of the students but also should take into account students' learning profiles, learning styles and intelligence preferences. Meanwhile Humanities teachers pointed to the significance of using pair and individual forms of work as well as using ability based grouping. That finding match

those observed in earlier studies. For example, Theisen (2002) suggests that process should be differentiated through various grouping strategies, such as "ability grouping, interest grouping, or grouping by learning profile" (p.2). Furthermore, the author mentions the process can be differentiated "by modifying the complexity…and by engaging students in critical and creative thinking" (p.4). The latter seems to be in agreement with teacher Jazmine's opinion in regards to developing students' skills in independent work. She underlined that students thinking skills would be more advanced if teachers provide them with more autonomy in the process of learning.

Another finding of differentiation of the process was participant Gulnar's way of grouping students. During the lesson observation it was noted that Gulnar put students in groups at random, without considering students' readiness level, or interests. This result corroborates the idea of Lewis and Batts (2005) who supported the idea of random grouping and referred to it as one of characteristics of flexible grouping. The stated that "students also can be grouped at random within a particular class session" (p.28).

As for the differentiation of the product, findings showed both STEM and Humanities teachers conceded that teachers should help their students to present the results of what they have understood or learned from the lessons. Nonetheless, there were slight differences as well. For example, STEM teachers accentuated the importance of employing innovative educational techniques as well as projects and presentations while Humanities teachers recommended more practical ways such as role-plays and mini projects. Some studies explain such a difference by the fact that "differentiated products can be applied more easily in some subject areas rather than in others" (Westwood, 2001, p. 8). One unanticipated finding was that, according to one of Humanities teachers, in presenting their works in groups high achieving students need to step back and allow low achieving students to take more responsibility and become more vocal. That teacher's opinion seems

to go in accordance with what several studies have showed their concern about. That is to say, when mixed ability groups work on the product there might be a risk that struggling students would become more dependent on strong students or teachers may begin to expect less from low achieving students (Mills et al.2014;Westwood, 2001).

Another essential principle of differentiated instruction is assessment. According to Tomlinson (2014), assessment and instruction are inseparable and that assessment is an everyday process that provide teachers "with day-to-day data on students' readiness for particular ideas and skills, their interests, and their approaches to learning" (p.31). Findings showed that teachers view on assessment seemed to be somewhat perplexing. For example, STEM teachers were unanimous in regards to the significance of differentiating the assessment based on criteria and considering students preferred style of learning as well as their abilities. However, the interesting finding was that teachers demonstrated a slight confusion between assessment ad grading. According to Westwood (2001) assessment could be referred to how much "learning has occurred for each student in the class…and may need to be taught again" (p.2) whereas grading is a system of scores or letter grades that are used to evaluate student's summative work. Other studies also prove that differentiation of assessment might cause some confusion and frustration in the teachers' community (Mills et al, 2014; Moon, 2005; Tomlinson, 2010; Westwood, 2001).

As the results showed STEM teachers kept referring to grading while probably meaning the formative assessment. For example, participant Gulnar mostly talked about differentiation of grading and expressed her concern that in most cases teachers evaluate students based on comparison. That is to say, "teachers differentiate their grading according to the students' level" (Nurmanova, 2018, p.60) and high achieving students are expected to present better job for the same grade where low achieving students might have demonstrated less effort. As another STEM teacher indicated, due to students' preferred

styles of learning it would not be fair to grade visual and audio learners based on the same criteria. That finding corresponded with Moon's statement that in the first phase of assessment it is vital to follow "specific objectives" in order to identify "what students should know, understand and be able to do" (p.228). She further underlines the importance of the second stage, which is guiding instructions and finally the third phase where summative assessment or grading occurs. That statement seems to be in agreement with one of Humanities teachers' point of view. According to participant Sandu, formative assessment ought to be done in every lesson; especially by the teachers who went under special training courses and that type of assessment was the demands of the upgraded syllabus. However, it seemed that a participant shared positive feeling towards differentiated assessment only because it was one of the requirements of an educational standard. That finding was unexpected and suggests that in some cases teachers tend to emphasize the significance of summative assessment and see phases in between as some inescapable requirement. According to Moon (2005), if teachers are reluctant to go through first two phases, they might eventually come to conclusion "that all students are the same" (p.229) and deprive students of chance to achieve the goals of the lesson, widen the academic gap, and negatively impact on students' attitude to the lesson. Another unexpected outcome with two other representatives of Humanities subjects was that they seemed to put more faith in assessment of learning rather than to see a value of assessment for learning. That result is inconsistent with those of other studies that suggest that educators should provide students with clear indicators or criteria they are expected to achieve on the road to final grading and view ongoing assessment as a merit that help both teachers and students see "how learning is processing and make necessary adjustments to make sure learning stays on course" (Tomlinson, 2005, p.264).

The current study found that teachers tend to misinterpret concept of readiness and replace it with ability based approach. In other words, readiness for some Humanities teachers was differentiating students and putting them in groups based their level of knowledge. However, one of the participants identified readiness as differentiating students not only based on their knowledge level, but also on other skills or other learning preferences might have, such as learning through drawings. Similarly, STEM teachers associated readiness with ability based approach as well. This finding contradicts to the previous studies which emphasize that readiness is a temporary factor which shows what students' current state is in regards to his knowledge, understanding or skills (Tomlinson, 2014). Moreover, "readiness is not a synonym for ability" (p.33) and is of a fluctuating character. That is to say, at any point a low achieving student may fill in the gaps and demonstrate progress while advanced student may show regress in any time. However, findings show that teachers tend to see students as low achieving, average and high achieving over a long period of time.

One of the questions of this study was to investigate whether there are some other components teacher would like to add to make the content of the differentiated instruction richer and more adaptable to the needs of their students. The findings showed that teachers consider developing students' creative thinking, employing more activities based on students' learning preferences, a variety of effective teaching methods, interests, and diminishing class sizes as possible valuable contributions that would help them to improve the differentiated instruction in their classrooms. These results agree with the findings of other studies, which showed that successful differentiated instruction is likely to happen when students' interests, learning and intelligence preferences, learning profiles and even the size of classes are taken into account (Lewis & Batts, 2005; VanTassel-Baska & Stambaugh 2005; Watts-Taffe et al., 2012;Westwood, 2009).

Concluding, it is noteworthy to say that teachers' perception of differentiated instruction in this seem to differ in some ways and sometimes disagrees with what other studies have proven to be true for the nature of differentiated instruction. A possible explanation for these results can be the teachers' misunderstanding of the purpose of differentiated instruction which may lead in teachers being cautious towards adopting the strategies because of a lack of experience in tailoring the curriculum in the most effective way, misinterpretation of the main concepts which is likely to create professional confusion and impact negatively teachers' willingness to use differentiated instruction in their classrooms.

5.3. Teaching practices

One of the aims of this study was to investigate teaching approaches used by the participants to implement the differentiated instruction in their classes. The findings revealed that overall teachers feel positive and open towards differentiated instruction but in most cases prefer teaching through ability based approach (Aliyeva, 2018).

As it was obtained from the interviews and observed at the lessons, teachers choose to use different forms of groupings to differentiate the content, process and product. Observations showed that teachers rarely use grouping in regards to assessment. Also, however the most common type of grouping would be when students are placed according to the level of knowledge rather than flexible groups. While this type of grouping has been mentioned as effective for diverse classrooms in some studies (Tervel, 2005) or needed to be done only at some specific period (Tomlinson & Allan, 2000), the proponents of flexible groupings suggested otherwıse. For example, a number of studies have found that flexible grouping where sometimes students work with classmates with similar interests, learning

preferences, or choose partners randomly can be more beneficial (Baecher, Artigliere, Patterson and Spatzer2012; Tomlinson & Allan, 2000).

Findings obtained from the interviews and lesson observations seem to be consistent with these mentioned studies. For example, STEM teachers mostly presented the content in the same way for all the students, and only differentiated the practical skills of the students through multiple level tasks, based on students learning preferences, interests and learning profiles, modified textbook materials, and engaging activities to provide students with hands-on experience. Moreover, in the interview STEM teachers suggested that grouping students by their abilities and have them perform levelled activities most often works better than when arranging them to work together considering other factors. Interestingly, some teachers tried to differentiate the content based not only on students' level of knowledge, but also linked it to students' interests and learning profiles. Nonetheless, others preferred to present the content in the same way for all students and only differentiated the tasks when it came to practice; again using ability based tasks. One possible explanation of such inconsistencies might be that teachers lack the knowledge of how to differentiate the content, especially with gifted learners (VanTassel-Braska & Stambaugh, 2010), therefore were reluctant to do it.

As for the Humanities teachers' practice to differentiate the content, findings showed similar patterns. All Humanities teachers indicated in their classrooms they tend to present the content through strategies such as suing varied readability level texts, adapted materials, ability based tasks and groupings, extra materials, and videos. That goes in line with what abovementioned studies found, i.e. content can be differentiated by providing simple or more difficult texts, modification of materials, films, music etc. (Theisen, 2002; Tomlinson & Allan, 2000l; Tomlinson, 2005; 2014). However, not all Humanities teachers wanted to include differentiation in their lesson or course plans. In their explanation,

teachers' awareness of students' abilities to do the tasks was enough for teachers to know what level of tasks each student was capable of doing. Thus, teachers did not need to make special preparations with lesson planning. Analysis of STEM teachers' course and lesson plans showed that almost none of them included differentiation of the content in the documents due to similar reason. They stated that their familiarity with every student's level of knowledge, their strong and weak sides, made it unnecessary to include differentiation in the course or lesson plans. No studies have been able to demonstrate that such conclusions had been drawn on any empirical evidence before.

Another interesting finding with STEM teachers was in regards to their practice of differentiation of the process. During the lesson observations it appeared that although STEM teachers showed preference to differentiate the process through grouping students by ability, they used random grouping as well. The probable effectiveness of such a method was mentioned by Tomlinson and Allan (2001) who suggested that in random grouping students can feel excited as they are make their own choice who to choose as a partner. Put it that way, learners' voice was heard and counted; consequently the core of differentiation has worked. Also it was noted that STEM teachers lean to group students by their learning preferences, or use mixed ability grouping when differentiating the process. However, as Mills et al. (2014) proved in their research putting low achieving and high achieving students in the same group might impact negatively on both types of students. That is to say, they warn that either struggling students may become too dependent on strong students and were not motivated to make progress, or high achieving students will suffer as their interest and eagerness to learn is quite likely to decrease.

In regards to Humanities teachers' practices of differentiating the process, slightly different findings conclusions have been detected. For example, teachers Duken and Sandu demonstrated their flexibility in allowing their students speak in the language they felt

most comfortable about. As students come to this school from schools where the language of instruction was either Russian or Kazakh, they needed some time to adjust to the demands of research where the language of instruction was Kazakh. During the lesson observations researcher noted that Sandu and Duken managed to create a safe atmosphere for students to allow them to switch from Kazakh to Russian languages. That is to say, student various educational background and cultural differences were taken into account. This result agrees with the findings of other studies, in which they state that the very nature of differentiated instruction recommends including culture, race, demographic and individual learning differences as a vital part of successful differentiation (Alavinia & Farhady, 2012; Mills et al., 2014; Tomlinson, 2000; 2009 ; Westwood, 2009;).

As for the practice of differentiating the assessment, both STEM and Humanities teachers have demonstrated mainly how they usually differentiate the ongoing assessment through oral encouraging, stickers for the most efficient groups when they were competing, some teachers employed descriptors to have their students to be familiar with what goals they are expected to achieve at the end of the lesson. The latter seem to go in line with Tomlinson's (2000) finding where she underlines that in differentiation of assessment it is "critical for teachers to provide multiple routes to accomplishing specified goals, so that each learner can progress to the greatest degree possible" (p.265).

Overall, findings on teaching practices showed that although both STEM and Humanities teacher indeed try to implement differentiated instruction in their practice, they tend to equate it with setting up mixed ability groups within classes rather than grant students with more opportunities to be heard or noticed in classes through flexible groupings. The result may be explained by teachers' insufficient amount of professional training and only nominal implementation of differentiated instruction in their practice.

Chapter 6. Conclusion

6.1. The focus of the thesis

The research questions this thesis sought to examine applying instrumental case study research design in a study of six teachers in a remote city of Kazakhstan were relationship between teachers' self-efficacy self-assessment and teachers' perception and practice of differentiated instruction. This chapter will summarize the research findings that were revealed in the present instrumental case study which included self-efficacy assessment survey, semi-structured interviews, lesson observations, and document analysis. The results will be presented in sequence with research question.

Recommendations derived from the research data will be provided to address the issues of differentiated instruction at the research site. Also, the chapter will discuss the limitations of the present study as well as implications for further research.

The main research question concerned STEM and Humanities teachers' self-efficacy self-assessment related to their beliefs of differentiated instruction and practices of differentiated instruction in a school in Kazakhstan. The subsidiary questions included approaches and strategies to differentiate learning process, relationship between teachers' self-efficacy and their willingness to implement differentiated instruction.

6.2. Teachers' perceived self -efficacy

Overall, most of the participants demonstrated a high level of perceived self-efficacy. However, findings showed that STEM teachers have slightly higher degree of personal self-efficacy than Humanities' teachers. This study, however, did not indicate any evidence that teaching subjects might impact in any way participants' self-assessment

level. Similarly, teaching experience of participants did not seem to be associated with their sense of confidence.

Also, there was not a clear relationship between professional development programmes playing an important role in teachers' self-efficacy assessment.

The study has confirmed that there seem to be a correlation between teachers' perceived self-efficacy and their willingness to use the differentiated instruction in practice. The more teachers were confident in their personal assessment, the more willing they were to introduce innovative educational methods in their classes. Teachers with lower level of self-assessment showed less eagerness to implement new educational approaches in their practice, but they still implement the differentiated instruction in their practice.

6.3. Teachers' self-efficacy in differentiated instruction

The study has found that generally teachers' degree of perceived and differentiated instruction self-efficacy was similar. To be more specific, participants felt more certain in their capability to differentiate the process and the content and less confident in their abilities to differentiate effectively the assessment and the product. The implications of this are the possibility that teachers might lack some knowledge in how to differentiate the assessment and how to support their learners in differentiation the results of their learning. Furthermore, data showed that some teachers might have confused students' ability to perceive and process the information with their readiness level.

6.4. Perception of differentiated instruction

Findings showed that teachers' perception of differentiated instruction vary from teacher to teacher. Some teachers understand the differentiated instruction as teaching

strategy where students' psychological traits, age peculiarities, and learning styles should be taken into account to meet the diverse population of their learners. All of them appear to see differentiated instruction as an ability-based approach where teachers tend to use tasks of various complexities rather than an approach beneficial for meeting the needs of diverse students. As for the differentiation of the process, results showed that although grouping is one of the most effective ways of the differentiation the process, most teachers tend to group students according to the abilities and not learning styles or intelligence preferences.

Also, the study has shown that teachers identified readiness with students' gaps in a particular segment of knowledge which could not be fixed. Participants did not mention that students eventually would be able to move on and reach a necessary level of knowledge or skills.

6.5. Practice of differentiated instruction

The present study revealed that the practice of differentiated instruction is mostly defined by teachers' understanding of differentiated instruction. Interviews and lesson observations showed that teachers choose to use different forms of groupings to differentiate the content, process and product. Observations showed that teachers struggled with how to grade and how to assess. In view of most participants formative assessment was necessary to use in classes to meet the needs of all students. Also, the most common type of grouping would be when students are placed according to their level of knowledge rather than flexible groups. That is to say, teachers felt more comfortable dividing students in groups based on their abilities rather than students' interests, learning styles or intelligence preferences.

Additionally, some of teachers felt less interested in formative assessment due to its novelty or teachers' inexperience with it.

The analysis of documents revealed that most of the teachers were not eager to include differentiation as an important element of their lesson and course plans. However, some participants did recognize differentiation as a vital part of a lesson which was reflected in their lesson and course plans.

The conclusion can be made that due to teachers' lack of knowledge in regards to some of the elements of differentiated instruction teachers' practice was mostly limited to ability-based approach.

6.6. Recommendations

This research has generated many questions in need of further recommendations. Firstly, teachers at the research site need to expand their knowledge in regards differentiation of assessment and product. Teachers need to be accommodated with professional support through participating in professional development programmes, lesson studies, and practice of lesson and course planning. Teachers need to learn more how to use flexible grouping and avoid ability-based approach, take into account that readiness and ability are not similar concepts, assist their student in how to present the results of their learning outcomes and know how to differentiate grading and assessment.

It is important for school administration at the research site to support teachers with creating lesson and course plans where differentiation should be described in details. Also, the school management is recommended to create professional learning centre in order to help teachers to build a correct understanding of differentiated instruction. Moreover, school administration needs to keep in mind that although teachers know which methods are the most effective to use to meet their students' needs, in some case teachers tend to choose an ability-based approach rather than an individual tactic to create a safe atmosphere for all learners in their classes.

6.7. Limitations and implications for further research

Although all research questions in the present study were answered, there are some limitations that need to be acknowledged. For example, in qualitative research it is not possible to generalize beyond what was studied. That means that findings only apply to the six teachers at the specific school. If there is a need to have more information about similar questions as examined in this research, similar studies should be conducted in other contexts. Also, there could be a quantitative survey based on insight gained from this study's results how teachers in Kazakhstan understand and practice differentiated instruction. Secondly, as only one lesson was observed in each participant's class, the data did not provide adequate information in regards to teaching practices. Therefore, in order to obtain more diverse and accurate data regarding implementation of differentiated instruction it would be recommended to increase the number of observed lessons. Limitations notwithstanding, the research provides insight in the daily practice of differentiated instruction in a well-respected school of a remote city in Kazakhstan.

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Appendices

Appendix A. INFORMED CONSENT FORM

The relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction: A case study of a school in Kazakhstan

DESCRIPTION: You are invited to participate in a research study on the relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction.

The purpose of this study is to learn about the association between teacher's level of confidence and belief of differentiated instruction and how they implement differentiated instruction in their classroom.

If you agree to participate in this study, please know that your participation is voluntary and you may choose not to answer questions or withdraw from the study at any time with no repercussions to you or to your organization. Data will be collected using a brief paper based survey; interview which, if you allow for it, will be audio recorded; lesson

observations where notes will be taken and analysis of course and lesson plans. If you agree to participate in this research would you kindly read and sign the consent form.

TIME INVOLVEMENT: If you agree to participate in this study, your participation will take approximately 15 minutes to complete a survey, 30 minutes of interview and 40 minutes of one lesson observation.

RISKS AND BENEFITS: There are no known risks or discomforts associated with this study. The expected benefits associated with your participation in the research are opportunities to share and reflect on your teaching. Your decision whether or not to participate in this study will not affect your employment or professional status in school.

PARTICIPANT'S RIGHTS: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the 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. The results of this research study may be presented at scientific or professional meetings or published in scientific journals.

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, (Dr. Rita Kasa, rita.kasa@nu.edu.kz).

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 from 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: _____

Appendix B. Survey protocol

Self-efficacy assessment questionnaire

This survey is designed to help the researcher to get a better understanding of teachers' self-efficacy in relation to implementation of differentiated instruction in the classrooms. Your answers will be kept strictly confidential and will not be identified by name.

Please rate how certain you are that you understand the concept of the differentiated instruction and willing to implement it in your practice. Indicate your answers by writing the appropriate number.

***Rate your degree of confidence by recording a number from 0 to 100 using the scale given below*:**

0 10 20 30 40 50 60 70 80 90 100

Cannot do at all — moderately certain can do — highly certain can do

Confidence (0-100)

1. Does your self-confidence affect your ability to perform?

1. I am an effective teacher who is capable of performing new tasks. _____
2. I can face the challenges and continue working effectively. _____
3. I handle new situations with relative comfort and ease. _____

4. I don't give up when the tasks are difficult. _____

5. I work hard to solve a problem to find the answer. _____

6. I achieve the goals I set for myself. _____

7. I am ready to face the challenging tasks. _____

8. I believe that if I work hard, I will achieve my goals. _____

2. Do you feel confident about differentiated instruction?

1. I understand the concept of the diversity of students. _____

2. I am familiar with the concept of the differentiated instruction. _____

3. I can adjust my lessons to the necessary level of every student. _____

4. I am able to make a lesson plan to connect every student with key content. _____

5. I understand the importance of differentiation the process of learning. _____

6. I am aware of how to support students to present the results of their work in different ways. _____

7. I understand and address each student's learning development and needs

in regards with learning outcomes of my subject. _____

8. I know how to create effective assessment practices. _____

9. I can differentiate through a variety of instructional strategies. _____

Appendix C. Sample Interview Protocol

The relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction: A case study of a school in Kazakhstan

NTERVIEW PROTOCOL

Date of the interview: December 18, 2018

Start time of the interview: 11.00

End time of the interview: 11.40

Place of the interview: school in Kazakhstan

Participant: teacher of English language

Interviewer: Aliya Kurmanova

Duration of the interview: 40 minutes

Introduction to a participant

You are invited to participate in a study on the relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction. The purpose of this interview is to learn about the association between level of confidence and belief of differentiated instruction and how differentiated instruction is implemented in the classrooms.

If you agree to participate in this interview, please know that your participation is voluntary and you may choose not to answer questions or withdraw from the interview at any time with no repercussions to you or to your organization. If you agree to participate in this interview would you kindly read and sign the consent form.

(After the consent form is read and signed by the participant - continue with the interview).

Starting the interview

Do you agree that the interview is digitally recorded?

(Turn on the recorder after the participant agreed to the recording interview)

Probable interview questions (might be adjusted based on the outcomes of the survey)

Differentiated instruction

1. What is differentiated instruction in your understanding?

2. How do you understand the concept of the diversity of students in the classroom?

3. Do you think it is important to differentiate your instruction? Why? Please, explain your answer.

4. Do you think it is right to differentiate students mainly by their level of readiness? Why? Please, explain your answer.

5. What other categories would you add to differentiated instruction to ensure that needs of every student have been met?

6. How do you usually help your students to present the results of their work in different ways?

7. Why do you think it is important to differentiate the content, i.e. the material you want your students to learn?

8. Do you think it is necessary to differentiate assessment? Why? Please, explain your answer.

Self-efficacy

9. In your survey you indicated that when there are challenges or obstacles you tend to give up performing the activity. Do you think this fact could be related to your uncertainty of implementation of the differentiated instruction in your practice?

10. Do you think it is vital to be successful with differentiated instruction from the very beginning otherwise it is not worth to continue? Why? Please, explain your answer.

11. Do you think teacher's self-efficacy could be related to their beliefs of differentiated instruction and can shape their way of teaching? Why? Please, explain your answer.

I have asked all my questions. Would you like to add something to what you already said or there was some question that I did not ask?

Concluding the interview

Thank you very much for your cooperation and participation in the interview.

Let me remind you again that all the data will be kept confidential and protected.

Appendix D. Lesson observation protocol

Setting: _____

Observer: _____

Role of observer: observe the subject (teacher)_____

Time: _____

Length of observation: 40 minutes_____

The main purpose of the observation will be to see how teacher differentiates content and process based on student need: readiness, interest and student profile.

The presence of such points in the lesson will be indicated by ticks and absences by crosses.

For ethical reasons, observation of the product and assessment will not be included to the protocol in order to exclude children from observation

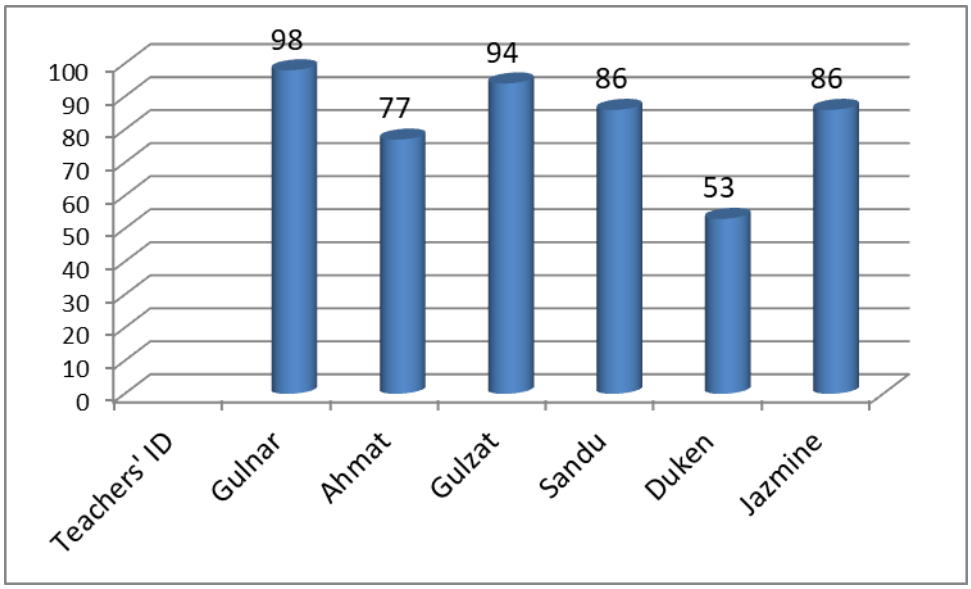
Observation of content		**Observation of the process**		**Assessment**	
Readiness		**Readiness**			
Materials at varied readability levels	✓✕	Tiered activities	✕✓	pre-assessment	✕✓
Alternate presentation methods	✓✕	Flexible use of time	✓✕	formal assessment	✓✕
Targeted small group instruction	✓✕	Varied homework assignments	✓✕	informal assessmenr	✓✕
Interest		**Interest**			

Range of materials ✓✗ that apply key ideas		Expert groups	✓✗	criterion based ✓✗ grading
Teacher presentations designed to link to student interests		Interest groups		valid grading ✓✗
		Independent studies		✓✗
		Supplementary materials based on student interests		✓✗
Learning profile		**Learning profile**		
Varied teaching modes (verbal, visual, practical)		Choice of working conditions	✓✗	✓✗
Video or audio notes for students who learn better with repeated listening		Tasks designed around intelligence preferences	✓✗	✓✗

Appendix E. Teachers' perceived self-efficacy

Teachers' ID	effectively perform new tasks	can face challenges	easily handle new situations	do not give up	work hard to solve a problem	always achieve the goals	work hard to achieve the goals
Gulnar	100	100	100	90	100	100	100
Ahmat	80	80	90	100	100	90	100
Gulnaz	90	90	90	100	100	90	90
Sandu	90	80	90	90	80	80	90
Duken	50	50	70	50	50	40	60
Jazmine	80	80	70	80	100	90	100

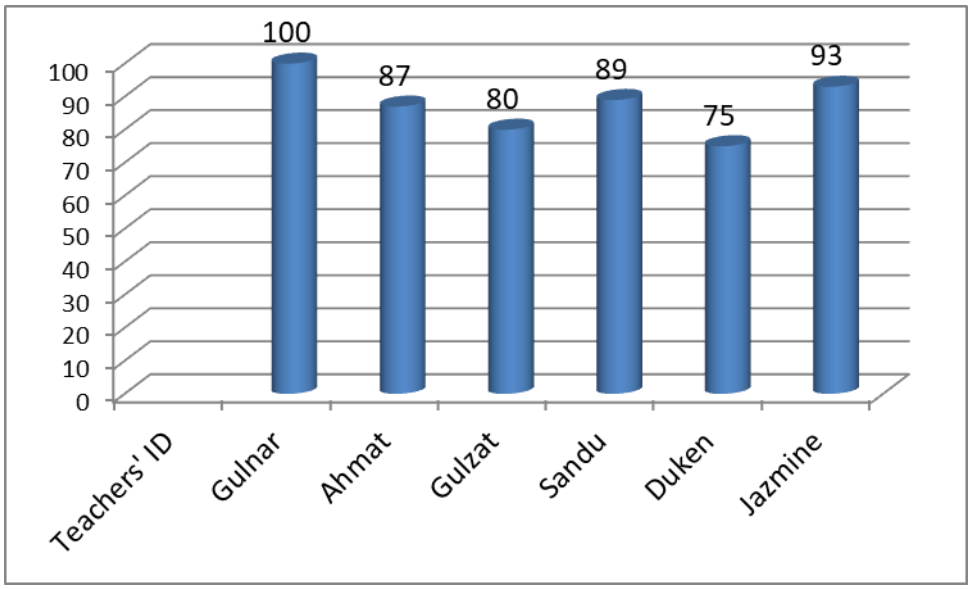
Appendix F. Mean of teachers' perceived self-efficacy



Appendix G. Teachers' self-efficacy in differentiated instruction

			Differentiation of:					
Teachers' ID	Concept of diversity	Differentiated instruction	content	process	product	assessment	instruction	Readiness
Gulnar	100	100	100	100	100	100	100	100
Ahmat	100	95	80	85	80	90	80	90
Gulnaz	90	70	80	70	90	70	80	90
Sandu	90	80	90	100	90	80	90	90
Duken	70	90	90	60	50	80	90	50
Jazmine	100	90	100	100	90	90	90	90

Appendix H. Mean of teachers' self-efficacy in differentiated instruction



Appendix I. Sample Interview Transcript

I –interviewer

J- Teacher

I: Thank you very much for agreeing to take part in the interview.

As you know, I am working on the research on the relationship between teachers' self-efficacy, beliefs, and practice of differentiated instruction. Your responses will be helpful for my study. Do you mind if I record our interview?

J: Please, I don't mind.

I: So, the first question would be "What is differentiated instruction in your understanding?"

J: Mmmmm… that would be about the process of instruction where you are going to effectively teach the students. And there should be cooperation between students and teacher and of course it includes the methods of teaching to effectively allow the students to learn the lesson.

I: How do you understand the concept of the diversity of students in the classroom?

J: The students have different behavior and of course some students have different pace as well and of course it will affect the behavior or an attitude in every activity as well as mmm…. in the lesson. So the teacher should know how to adjust and to be knowledgeable enough to handle the differences of these students.

I: Ok, thank you. Do you think it is important to differentiate your instruction?

J: Of course it is because the students have different understanding and they have different learning abilities as well.

I: ok. Do you think it is right to differentiate students mainly by their level of readiness? Why? Please, explain your answer.

J: Oh, yes it is. Because some of the students are beginners, some are a little bit of intermediate, there are rare students who are advanced, so the teacher should know how to differentiate them for her or him to be able to make a daily lesson that is effective to each of them. However we cannot really separate them because they are in one class. So, teacher should know how to approach the students.

I: What other categories would you add to differentiated instruction to ensure that needs of every student have been met?

J: I think we can include the hmmmm… the different skills like for example some of the students are skillful in writing, the others in reading, the others are good in speaking, but not so good in writing so the teacher should assess the students so he would be able to manage the lesson very well. It is because the main goal is for the students to learn further and not to stop them from improving themselves.

I: So, how do you usually differentiate the process?

J: with the lesson of course approach should be … should matter. So, if the lesson is a little bit easy for the student, then you have to add some more examples and some more activities. And if it is too hard for the students, then you have to make another activity that would meet their needs and their skills as well. But do not allow them to be stagnant in their learning. You need to add some more hard questions and let them be able to do it also by themselves by giving some homework.

I: So, in your own practice do you mostly differentiate by their level of knowledge, or like you said by their learning styles, or by their interests?

J: Yes, yes, I do, I do. As you mentioned it's about the level of learning and their skills too.

I: So, you mostly differentiate by their level of knowledge?

J: Yes, yes

I: So, when you differentiate the process which forms of work do you mostly use? For example pair work, group work?

J: I do group work; I allow them to have some role plays. I think some students here have difficulties in speaking. So, I let them do the dialogue, and read, and speak, and express their thoughts in English even though most of the time it is incorrect, but if they are used to the word or the sentence, afterwards they will be able to apply it in correct grammar.

I: So, in your own practice as an EFL teacher, how often do you differentiate? Why?

J: It's really very important and I always use that. Actually, most of us who are teaching ESL, before we introduce the proper lesson, we do introduce the assessment, so we know who the beginners , intermediate and the advanced are. And if we have that…., we are given the authority to separate it is an advantage for us, but if not, we need to adjust

I: So, you mentioned assessment. How important you think the role of assessment in differentiated instruction?

J: I think that it is the core of the differentiated instruction, because without assessing the student, and then the learning you are getting from the teacher will be lesser than you expect, other or the management will expect.

I: In your practice, how do you usually differentiate the assessment?

J: In my years of teaching, I don't know how you define that but we use different approach, i.e. methods of teaching instead of differentiated teaching. So, if you have a different definition, maybe I think it includes that, differentiated teaching includes the methods of teaching. We use different approach to enable the students to grasp the lesson that we are teaching them.

I: Why do you think it is important to differentiate the content, i.e. the material you want your students to learn?

J: Oh, yes, of course. I do that and if ever it will not match the level of the students, then I ask them to as much as possible do it by themselves, using dictionaries. I do not spoon-feed the students; I do not allow then always ask me, they should learn how to depend on other resources, not just from the teacher.

I: How do you usually help your students to present the results of their work in different ways?

J: After allowing them to apply, for example, after a role-play, I've seen that they are still…,mmm… they still need some improvement. Then of course, I will encourage them to use more, to learn more vocabulary, I will encourage them to do more homework, and I need to check if their home works are done well or not. Also, I will introduce some more topics and sometimes I do one on one to my students. And for the poor students, I really ask them to sit in front; I focus teaching, no, not just teaching that particular student, but my attention is with him because he whether likes it or not, that student deserves to learn from me.

I: Ok. Do you think differentiated instruction should be done at every lesson or in every unit? Why? What does it depend on?

J: I think it is very important to do differentiated instruction at the beginning, maybe during the first term, and if you see that there are improvements, then of course you know that you still need to do that next term or not, but if you know that you need some more improvements, then, you still need to do that every now and then.

I: In your survey you indicated as close to absolutely certain to 1.3. “I handle new situations with relative comfort and ease”. Other points were higher than 70 out of 100. Do you think this fact, high level of self-efficacy, could relate to your willingness of implementation of the differentiated instruction in your practice?

J: Yes, of course, if you have a high level of self-efficacy, you have high level of confidence, self-esteem, you have willingness to improve yourself, you always have the room to make the every instruction or lesson that you do to become better each day and it really affects how you teach the students. So, the higher your self-efficacy, the higher is your willingness to become a better teacher for your students.

I: Do you think it is vital to be successful with differentiated instruction from the very beginning otherwise it is not worth to continue? Why? Please, explain your answer.

J: Of course, I think so too. I mean, because if you start at the middle, then of course you are getting behind your goal. The goal should be, you initiate that goal that you have in mind, at the very first and not at the end, or near the end, or at the middle part of your teaching. So, the teacher should know where to begin. I think it will be very effective if you start at the very beginning, and if you do it right, you will end it right.

I: So, hypothetically speaking, if some teacher was trying to implement differentiated instruction in his practice, but failed at some point, and is not willing to do it again, does not want to continue, because he thinks he will not be able to do it successfully. Do you think he should continue despite the failure?

J: Yes, of course he should despite the failure because everyone has their weaknesses. So, I still believe that there is always room for improvements, though he or she fails the first time, the second time, but I believe we should from every failure. We should be challenged to become better in profession, or a better leader. Because teachers are also leaders, they should models of not giving up, but to encourage themselves no matter what happens.

I: How likely do you think it is that teachers with low self-efficacy might give up on implementing the differentiated instruction?

J: I think they are the way they are. Or maybe they are lazy, or not inspired with what they are doing. They have low self-esteem, but I think the problem is with their attitude towards their career.

I: So, if we summarize, do you think teacher's self-efficacy could be related to their beliefs of differentiated instruction and can shape their way of teaching? Why? Please, explain your answer.

J: yes, I think so.

I: I have asked all my questions. Would you like to add something to what you already said or there was some question that I did not ask?

J: No

I: Thank you very much for your cooperation and participation in the interview. Let me remind you again that all the data will be kept confidential and protected.