Humanities teachers' conceptualization and pedagogical practices of critical

thinking: A qualitative case study within a Nazarbayev Intellectual School (NIS) in

Kazakhstan

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HUMANITIES TEACHERS' CONCEPTUALIZATION AND PEDAGOGICAL PRACTICES OF CRITICAL THINKING

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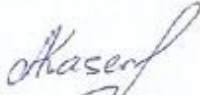
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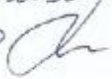
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November 2019

Dear Aigerim Kassembekova,

This letter now confirms that your research project entitled:

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has been approved by the Graduate School of Education Ethics Committee of Nazarbayev University.

The changes recommended by the reviewer have been addressed and the proposed study now complies with all of the requirements of Nazarbayev University.

You may proceed with contacting your preferred research site and commencing your participant recruitment strategy.

Sincerely,

Anna CohenMiller

On behalf of Elaine Sharplin
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Abstract

For this thesis I focus on one of the "four C" skills of the 21st century - critical thinking (CT). Critical thinking is considered a complex concept that is new for the educational context of Kazakhstan. Recognizing that teachers' beliefs and understanding about CT can have a direct impact on classroom practices. Therefore, it is important to explore teacher's conceptualization to see the connections. The purpose of this qualitative study was to explore teachers' conceptualization of CT and their pedagogical practices for developing CT for students in one Nazarbayev Intellectual School (NIS) in Kazakhstan. The data were collected through semi-structured face-to-face interviews with twelve teachers working in the school. As a result of the qualitative analysis, the study revealed teachers' conceptualization of CT, familiarity with the phenomenon, and what principals and strategies were implemented for developing CT skills for students. Findings indicated that although secondary school teachers conceptualize of CT in varied ways there are some commonalities. Although the participant teachers provided a list of general principles to foster CT, there were some contradictions. The Teachers shared strategies, activities and exercises they use to promote CT, providing insight to challenges and possible solutions for the classroom. The significance of developing CT is emphasized widely around the world and the findings of this research are significant not only in the Kazakhstani context but also could be relevant in similar teaching and learning environments undergoing significant educational reform emphasizing critical thinking. Additionally, the findings of this study could be useful by a number of educational stakeholders, including teachers, administrators, parents, and policy makers. Practical solutions found in this study could encourage others to reflect on their own practices, to be aware of the changes in pedagogy, and to enhance and make revisions of training courses and instructional guidance for teachers relating to critical thinking.

Keywords: teachers' conceptualization, critical thinking, pedagogical practices, teacher beliefs, secondary school

Аңдатпа

Бұл зерттеуде мен XXI ғасырдағы «төрт С» дағдыларының біріне назар аудардым - сыни тұрғыдан ойлауға (СТО) - Қазақстанның білім беру контекстінде жаңа болып табылатын күрделі тұжырымдама. СТО туралы мұғалімдердің сенімдері мен түсініктері сынып практикасына тікелей әсер етуі мүмкін екенін мойындай отырып, байланыстарды көру үшін мұғалімнің тұжырымдамасын зерттеу керек. Осылайша, бұл сапалы зерттеудің мақсаты мұғалімдердің СТО тұжырымдамасын және Қазақстандағы бір Назарбаев Зияткерлік мектептеріндегі студенттерге СТО дамытудың педагогикалық тәжірибелерін зерттеу болды. Деректер мектепте жұмыс істейтін он екі мұғаліммен жартылай құрылымдалған көзбе-көз сұхбатының көмегімен жиналды. Сапалық талдау нәтижесінде, зерттеу барысында мұғалімдердің СТО тұжырымдамасы, құбылыспен танысу және студенттерде СТО-дың дағдыларын дамыту үшін қандай принциптер мен стратегиялар жүзеге асырылғандығы анықталды. Жалпы алғанда, орта мектеп мұғалімдері СТО-ды концептуалды түрде әртүрлі тәсілдермен тұжырымдайтынына қарамастан, кейбір ортақ жақтары бар екенін көрсетеді. Қатысушы мұғалімдер СО-ға ықпал ететін жалпы қағидалардың тізімін бергенімен, кейбір қайшылықтар болды. СТО-ға ықпал ететін ортақ стратегияларды, іс-әрекеттер мен жаттығуларды үйрету, қиыншылықтар мен сыныптағы мүмкін шешімдер туралы түсінік беру. Сыни ойлауды дамытудың маңыздылығы бүкіл әлемде кеңінен танымал және бұл зерттеудің нәтижелері тек қазақстандық тұрғыда ғана емес, сонымен бірге сыни ойлауды баса көрсете отырып, маңызды білім беру реформалары жүргізіліп жатқан ұқсас оқыту мен оқыту жағдайларында маңызды болуы мүмкін. Осы зерттеудің нәтижелері бірқатар мүдделі тараптар, соның ішінде мұғалімдер, әкімшілер, ата-аналар және саясаткерлер үшін пайдалы болуы мүмкін. Практикалық шешімдер басқаларды өз тәжірибелері туралы

ойлануға, сыни ойлауға қатысты мұғалімдерге арналған оқу курстары мен әдістемелік нұсқауларды жетілдіру мен қайта қарауды қоса алғанда, педагогикадағы өзгерістер туралы хабардар болуға түрткі болар еді.

Түйінді сөздер: мұғалімнің концептуализациясы, сыни ойлау, Педагогикалық тәжірибе, мұғалімнің сенімдері, орта мектеп.

Аннотация

В этом исследовании я остановлюсь на одном из навыков «четырех С» 21-го века - критическое мышление (КТ) - который считается сложной концепцией, новой для образовательного контекста Казахстана. Признавая, что убеждения учителей и понимание КТ могут иметь непосредственное влияние на практику в классе, важно изучить концептуализацию учителя, чтобы увидеть связи. Таким образом, целью этого качественного исследования было изучение концептуализации учителями КТ и их педагогических практик для развития КТ для учащихся в одной Назарбаев Интеллектуальной школе в Казахстане. Данные были собраны с помощью полуструктурированных личных интервью с двенадцатью учителями, работающими в школе. В результате качественного анализа, исследование выявило концептуализацию учителями КТ, знакомство с этим явлением и какие принципы, и стратегии были реализованы для развития навыков КТ для учащихся.

В целом, результаты показывают, что, хотя учителя средних школ по-разному воспринимают КТ, есть некоторые общие черты. Хотя участвующие преподаватели предоставили список общих принципов, способствующих развитию КТ, были некоторые противоречия. Обучение общим стратегиям, действиям и упражнениям, которые они используют для продвижения КТ, предоставляя понимание проблем и возможных решений для класса. Важность развития компьютерной томографии широко подчеркивается во всем мире, и результаты этого исследования важны не только в казахстанском контексте, но также могут иметь отношение к аналогичной среде преподавания и обучения, в которой проводится значительная образовательная реформа с акцентом на критическое мышление. Результаты этого исследования могут быть полезны ряду заинтересованных сторон в сфере образования, включая учителей, администраторов, родителей и политиков. Практические решения могут побудить

других задуматься о своей собственной практике, быть в курсе изменений в педагогике, в том числе усовершенствовать и пересмотреть учебные курсы и методические рекомендации для учителей, касающиеся критического мышления.

Ключевые слова: концептуализация учителей, критическое мышление, педагогические практики, убеждения учителя, средняя школа

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Chapter I: Introduction

The Importance of Critical Thinking in Education and the Economy

Developing the education sector is the key priority for achieving economic growth. Economic growth of Kazakhstan is the central part of the developmental strategy of the country and requires more attention than politics (Nazarbayev, 2018a). The educational sector takes on an essential role for the new direction in economic development (Nazarbayev, 2017). In order to become a globally recognized and competitive country, it is important to enhance educational quality, considering that human resources are the foundation for modernization (Nazarbayev, 2018). Therefore, the key priorities of education are to prepare a skillful workforce and citizens to constantly adjust to a shifting environment searching for and assimilating new knowledge (Burkhalter & Shegebayev, 2010; Nazarbayev, 2017; Nazarbayev, 2018). In one important state document, "Kazakhstan Strategy – 2050," it is stated that knowledge and professional skills are the foundation of modern education, which is made possible through both the modernization of teaching methods and promotion of innovative research (Nazarbayev, 2018a).

Kazakhstan has participated in international assessments, such as the Programme for International Student Assessment (PISA), Trends in International Mathematics and Science Study (TIMMS), and Progress in International Reading Literacy Study (PIRLS). Results from those assessments have helped to evaluate the quality of education in the country as compared to those in other countries' education systems and to propel the government for reforming education (OECD, 2014). Data from TIMMS and PISA showed that students from the secondary school system mostly possessed theoretical knowledge which suggested changing the teaching methods focused on memorization and rote-learning (Nazarbayev University, 2014; OECD, 2014). The results showed that

Kazakhstan's students performed poorly in acquiring and practicing critical thinking skills, such as applying, evaluating, reasoning, reflecting and analyzing, which are all noted as necessary skills for a changing economy (Nazarbayev University, 2014; OECD, 2014). Based on the data about education quality in the country, the government of Kazakhstan announced several reforms starting in 2001 (Yakavets & Dzhadrina, 2014). Moreover, the Ministry of Education and Science of the Republic of Kazakhstan (MESRK) looked for ways to reestablish existing approaches relative to the content, methodologies, and technologies in schools (Nazarbayev, 2018a). The national vision of education was reflected in the policy document "State Programme for Education Development for 2011-2020", which emphasized that by 2020 Kazakhstan will be "an educated country with a smart economy and highly qualified labour force" (Nazarbayev, 2018a). In other words, the reforms helped to develop the quality of education with greater focus on skills improvement.

For example, according to the Human Development Report (2017) prepared by the United Nations Development Programme (UNDP), mastering and developing skills such as critical thinking, collaboration, communication and creativity, should be mandatory as they are pivotal and highly-demanded in the labour markets (MESRK, 2017). Kazakhstan's former president Nursultan Nazarbayev in his addresses to the nation of Kazakhstan (2017; 2018, 2018a) also pointed out that developing functional literacy and critical thinking skills should be central elements of school curriculums in order to prepare future innovators and leaders (NU, 2014). Educational reforms in the secondary education system of Kazakhstan encompass broad and significant changes with a move towards deeper learning. In this thesis I will be focusing on the importance of critical thinking.

Policy, Critical Thinking, and Higher Order Thinking: Exploring Kazakhstan's

Recent History

After gaining independence, the period from 1991 to 1995 in Kazakhstan was a

transition process from destroying old ideology and defining a new independent state

ideology (Morozov & Tastenov, 2006). In 1997, the "Kazakhstan-2030 Strategy" was

defined as a primary source on formation of state ideology and future development ideas of

all aspects of life (Morozov & Tastenov, 2006). For secondary education, the "Kazakhstan-

2030 Strategy" outlines the need for qualified academic knowledge and developing

skills. By 2020, students were expected to show high results in international assessments

such as PISA, TIMSS, PIRLS and to raise highly educated, moral, healthy citizens, critical

and creative thinkers, and life-long learners (MESRK, 2010). In order to achieve the

determined goals, changes and new directions for secondary education were reflected in

educational policies, regulations, practices and reforms. As a result, in 2008, establishing

of the twenty Nazarbayev Intellectual Schools with autonomy and academic freedom was

the first step for the modernization of the secondary education system (Shamshidinova,

Ayubayeva & Bridges, 2014). Where the pedagogical practices should be developed and

further spread over the whole secondary education system.

Nazarbayev Intellectual Schools (NIS). The best pedagogical practices have been

developed and distributed within the chain of Nazarbayev Intellectual Schools (NIS),

which educate gifted and talented students. The "updated curriculum" or practices

developed in NIS schools transferred for the whole secondary education which includes

the "best traditions of Kazakhstan education system and international best pedagogic

practices" (Shamshidinova & et. al., 2014, p. 274). Likewise, these practices are further

intended to be transferred to the "mainstream" schools (Nazarbayev, 2018a;

Shamshidinova & et. al., 2014). Therefore, the developed and adopted pedagogical

practices in NIS schools were spread for the whole secondary education system of

Kazakhstan.

It is important to note there are differences between NIS and mainstream schools,

such as student ratio, classroom density, infrastructure, access to resources and the internet.

In Kazakhstan, "mainstream" schools refer to public schools which are on the state's

budget. During the years 2012 to 2015 there were approximately 2000 online lessons for

students, as well as 188 online seminars and 400 workshops for teachers from mainstream

schools in order to share NIS experiences (State Program for Development, 2016). In

addition, an online platform "System-methodical complex" was created which aimed to

provide methodical support for mainstream teachers with the implementation of the

updated curriculum. At the same time, in this platform, NIS schools share practices (e.g.,

curriculum, lesson plan and resources, as well as formative and summative assignments)

and cooperate with mainstream schools through online discussions and seminars

(Autonomous Education Organization, 2017, p. 2; MESRK, 2017, p.12). The gradual

transition of pedagogical practices from NIS schools had been through the various

channels.

Teaching students to engage in inquiry, research, problem solving and critical

thinking was defined as the main focus of the NIS programme (OECD, 2014). Practices

were developed together with qualified native specialists and foreign experts, team-

teachers, and under the supervision of international educational organizations such as

Cambridge International Examination (CIE) and the International Baccalaureate (IB)

(Shamshidinova & et. al., 2014). Some key elements of NIS practices, such as new

programmes and subjects, critical thinking and in-depth learning of languages and

information and communication technologies (ICT) were confirmed by the government for

wider implementation choice the secondary education system of Kazakhstan in 2013

(Shamshidinova & et. al., 2014). However, it is debatable whether teaching methods for

developing critical thinking with gifted students from NIS schools will equally and

beneficially work for less advantaged students and their teachers (OECD, 2014). Thus, the

study of different context realities and implementation experience in NIS schools would be

the first step to creating thinking skills curricula and programmes to provide equal

opportunities for students from both urban and rural schools.

Soviet education system in Kazakhstan. On international comparison tests, PISA

and TIMSS, the results showed that former "Soviet Union countries (i.e. Armenia,

Romania, Georgia, Former Yugoslav Republic of Macedonia, the Slovak Republic,

Russian Federation, Lithuania, Serbia, Hungary, Slovenia, the Czech Republic, Bulgaria,

Montenegro, Azerbaijan, Poland, Kyrgyzstan and Kazakhstan) showed lower level

performance in applying higher-order thinking skills" than countries from Europe, the

Americas, the Far East and Oceania (OECD, 2014, p. 56). The term "higher-order thinking

skills" usually refers to the top three thinking skills identified in Bloom's taxonomy which

are analysis, synthesis/creation and evaluation; these are all connected with critical

thinking. Most previous studies report that teaching and learning approaches of the former

Soviet Union system centered on a "sciento-technocratic" (Fimyar, 2014, p. 188)

paradigm which practiced mostly teacher-centered learning, lecturing, memorization,

outcome-based learning, lack of interactive approaches (Burkhalter & Shegebayev, 2012,

p. 62; Fimyar, 2014, p. 188; OECD, 2014, pp. 87-88).

Generally, the international assessments define some disadvantages of the Soviet

system, and yet there are noted advantages. According to Yakavets (2014), there were

several benefits from the Soviet Union periods including free access to education,

development of infrastructure, qualified teachers, and high level of teaching in science and

mathematics subjects in educational organizations. Moreover, Mackle (1988, as cited in

Fimyar, 2014) defines Soviet education as an advantageous with systematic approach in all areas which provide versatile and holistic development of people. Another example, in Fimyar's (2014) study one of the respondents reported about productivity of curriculum where theoretical knowledge effectively integrated with practice. Thus, the opinion about Soviet education is ambivalent.

Therefore, the Soviet education system legacy cannot be presented only with disadvantages; there are a diversity of influential factors and changing demands of the time. For instance, after gaining independence, Kazakhstan survived the economic crisis, as well as political, social and cultural reforms, which also had a significant influence on the education system of Kazakhstan. According to Fimyar (2014), it is observed an "ambivalent attitude" to the Soviet education system (p. 185). Moreover, it is emphasized that pre-Soviet, post-soviet and post-independence Kazakhstan is different with constantly changing values and vision (Fimyar, 2014). Focusing on the improvement of results in international assessments PISA, PIRLS, TIMMS and in International Competitiveness Indexes is the main direction of policy makers in Kazakhstan (p. 191). However, international best practices were developed due to the international assessments results; others note the importance of the context during implementation of those "best practices." Meyer and Benavot (2013) note that the results of PISA should not be seen as a final resolution for rush reforms, otherwise there is a possibility to lose cultural diversity, traditions and advantageous features of one's own education system (p. 120).

As seen here, contextual consideration is one of the essential aspects of the reform initiatives to avoid blind acceptance of recommendations of the international or global education market. As such, I am using a conceptual framework centering on constructivism to highlight the importance of context, which will be discussed further in chapter two.

Problem Statement: Critical Thinking Needs Further Examination in Kazakhstan

Critical thinking has been defined as a complex concept which has various definitions in philosophical, psychological academic disciplines and in the educational field. Some researchers define CT as a set of skills and abilities, while others define it as cognitive skills and dispositions (Lai, 2011). Lai (2011) reports that critical thinking can be taught if students are provided with an appropriate learning environment. It should be the Place where students can explore, raise questions, and are open to several answers (Lawson, 1993). In order to develop critical thinking skills, a student-centered approach is considered as an appropriate method, whereas the teacher's role is as a facilitator rather than as an instructor (Pithers & Soden, 2010). Therefore, the development of critical thinking requires a specific learning environment and instructional strategies.

Developing critical thinking could be considered as a new phenomenon in the context of the Kazakhstani education system. Only in the last one and two decades, after the results of international assessments such as PISA and TIMSS, did the term "critical thinking" start to be emphasized in policy documents. Moreover, non-governmental international organization the Open Society Institute (OSI) revealed some drawbacks in Kazakhstani pedagogy and funded "active learning, critical thinking, debate program and civic education" in Kazakhstan (Yakavets, 2014, p. 18). Thus, these steps and projects show that Kazakhstan's educational system has been working towards new ideas, approaches and concepts in learning and teaching.

According to some researchers (Burkhalter & Shegebayev, 2012; Fimyar, 2014; Yakavets, 2014), Kazakhstan's present-day pedagogy has a legacy from the "Soviet" education system, which was centralized, overloaded, teacher-centered, fixed, and rote-learning which mostly focused on memorization. Burkhalter and Shegebayev (2012) state that in Soviet times, teachers were trained under a highly authoritarian, hierarchical system

which limited independent thinking and creating lesson materials. Authors believe that those teachers would have challenges during the implementation of student-centered approaches and collaborative learning which are the fundamentals of developing CT. As Manuel and Dutton (2019) explain, pre-service teachers mostly make assumptions based on their own experience as a learner and their practices are influenced by their own teachers or other authority models. At the same time, Guthrie (2018) and Alexander (2001) both state that the culture of the country has a significant impact on the diversity of classroom life and practices. Teacher's beliefs are a key aspect which has influence on teaching (Kusaeri & Aditomo, 2019). Therefore, teaching of CT could be controversial and confusing for teachers, especially if trained under a pedagogical system outside of current educational reforms.

Previous studies on CT in Kazakhstan are limited. They have mostly focused on specific aspects as English teachers' beliefs about CT (Tursunbayeva, 2018), teachers' awareness about CT and their classroom practices (Burkhalter & Shegebayev, 2010), teachers experience on implementing critical reading (Yutsevichutene, 2017), and Soviet-trained teachers' perceptions about CT (Burkhalter & Shegebayev, 2012). There are other studies which provide some information about implementation of CT, they are about new curriculum reforms (Ibragimova, 2017; Gimranova, 2018), assessment practices (Nurgazina, 2019), implementation of the International Baccalaureate program (Mukazhanova, 2017). However, there is a need for empirical studies about teachers' perceptions, as well as about classroom practices on the implementation of CT in Kazakhstani context.

Therefore, while some people may see negative views of Soviet education, others disagree. For this thesis, I sought to show the varied factors, views, and historical insights about Soviet education and transition periods from the perspectives of the participants

themselves. Further I suggest that a localized study could help provide insights into the

conceptualization of CT and experience in pedagogical practices of one of the NIS

schools. I focus on the one of the NIS schools with the International Baccalaureate (IB)

programme and their experience of infusion critical thinking into the curriculum. This

might be helpful information about the principals and features on critical thinking

implementation for the teachers of other schools in the secondary education system of

Kazakhstan.

This study focuses on teachers' conceptualization and their classroom practices for

developing CT which were adopted and tested within the schools that follow the

international standards and programme of International Baccalaureate. It fills a gap in the

literature about understanding of CT and implementation features of CT within the realities

of Kazakhstani context, culture and education system. The findings of the research can

contribute to deeper pedagogical insight for effective use of CT into curriculum.

Statement of Purpose and Objectives

The purpose of this qualitative case study was to examine humanities teachers'

conceptualization of CT and to explore adopted pedagogical practices for improving CT

skills of students in one of the NIS schools with IB programme in Kazakhstan. Therefore,

the objectives of this thesis were three-fold: (1) to explore understanding of CT in other

countries and to identify existed teaching practices employed to foster students' CT skills,

(2) to examine current perceptions and practices in Kazakhstan, and (3) to develop further

recommendations for Kazakhstan teachers and other stakeholders about effective infusion

of CT into curriculum.

Research Questions

There were two research questions guiding this thesis:

1.   What is the conceptualization of critical thinking for Humanities teachers in one of the NIS schools with an IB programme?

2.   What are the pedagogical practices employed by Humanities teachers for middle and diploma year programmes to develop critical thinking skills of students in one of the NIS schools with an IB programme?

Significance of the Study

This study is significant as it explores humanities teachers' conceptualization of CT and instructional practices fostering critical thinking. This is a fundamentally important field within Kazakhstan educational context, as a key component noted by the former President with direct relevance for development of 21st century skills. The results of this study can provide important insights, such as for teaching practices to cultivate critical thinking and positively affect student learning. The findings of this study can be applied in other secondary schools of Kazakhstan to help teachers who are implementing critical thinking. The participant teachers' experience may help provide practical solutions allowing others to reflect on their own practices and to be aware of the changes in pedagogy.

In Kazakhstan, understanding and searching for information about infusion of critical thinking into the curriculum from the existing and developed practices within the country context would be beneficial for policy makers from the Ministry of Education and Science. It will be helpful to enhance and make revisions of training courses and instructional guidance for teachers. Ultimately, the significance of developing CT is emphasized widely around the world and the findings of this research are significant not only in the Kazakhstani context but could also be relevant in similar teaching and learning environments undergoing significant educational reform emphasizing critical thinking.

Key Terms and Definitions

The following key terms and definitions used throughout the thesis and are listed below in alphabetical order:

- **Conceptualization** is the ability to invent or formulate an idea or concept.

- **Department of Humanities which is adopted from Individuals and Societies from IB Programme** is department which incorporates such courses as economics, geography, history (World and Kazakh), Social studies (World and Kazkh), philosophy, psychology, social and cultural anthropology, world religions, environmental systems and societies, theory of Knowledge (IB, 2014).

- **International Baccalaureate Organization:** (known as the IB) offers four high-quality and challenging educational programmes for a worldwide community of schools, aiming to create a better, more peaceful world (IB, 2014).

- **Student-Centered Classrooms "**are used to capture a learning environment in which there is a co-construction of knowledge (that is, by the teacher and the student). These are driven by philosophical frameworks that place students and teachers within a collaborative and non-hierarchical environment" (Esnard & Mohammed, 2019, p. 56).

- **Teacher-Centered Classroom "**is a pedagogical approach which places the teacher at the center of teaching and learning in the classroom. Such classroom environments are often referred to as traditional and didactic" (Esnard & Mohammed, 2019, p. 56).

Conclusion

In this chapter, I noted the history of educational reforms, drawing a link between influence of previous pedagogical approaches and implementation of CT which requires appropriate learning environment and followings to set of principles.

The full thesis consists of five chapters: Introduction, Literature review, Methodology, Data analysis and Findings, and Discussion and Conclusion. The introduction, context, problem and purpose of the study were presented in Chapter 1. The Literature Review in Chapter 2 discusses different studies about teachers' perceptions and existed classroom practices of previous studies related to CT. The topics are organized according to the order of the research questions and are divided into sections and subsections. For example, the first subsection is about definition of CT, the second one is about teachers' conceptualization about CT and the third one is about pedagogical practices. Moreover, Chapter 2 reviews different existed strategies on developing CT of students.

The Methodology of the study is presented in Chapter 3 which presented information about research design, sampling and site selection. In this part, there is also description on data collection along with reflections on my positionality as a researcher. Ethical considerations are presented at the end of the chapter.

Chapter 4 contains information on the process of data analysis and findings for the research questions with evidence from the data and analysis. Chapter 5 presents discussion of study results connecting the findings to the literature at large. Finally, the conclusion within Chapter 5 summarizes the study and provides recommendations and implications of the results. Additionally, there is information about limitations of the research and suggestions for future study.

Chapter II: Literature Review

In this chapter, I present a review of the literature related to the topic of critical

thinking (CT), specifically relating to the implementation of CT internationally. Also, I

provide the definitions of CT, as well as, skills and dispositions connected with CT. The

goal of the chapter is to understand the literature about critical thinking as a backdrop to

understand teachers' perceptions of CT and to review classroom practices for developing

student's CT.

Definition of Critical Thinking

There are numerous definitions of critical thinking in philosophical, psychological

and educational approaches. Paul, Elder and Bartell (1997) and Karbalaei (2012)

considered that critical thinking could not be defined or limited within only one

definition because of its complexity, broad application in different aspects of life, and long

historical development (as cited in Uribe-Enciso et al., 2017). All approaches emphasize

different characteristics and features of CT. Most of the philosophical definitions point out

reflectivity and judgement. For the psychological approach, critical thinking mostly

focuses on actions and behaviors which includes a list of observable skills performed by

students. Educational definitions are widely based on the hierarchical Bloom's taxonomy,

where the three top processing skills are defined as higher-order thinking skills as well as

critical thinking (Knight & Robinson, 2019; Lai, 2011). However, for the purpose of this

paper, it is focused on an eclectic approach to choose multi-faceted and radical definitions

to avoid one dimensional definition.

The representatives of philosophical approaches start from the writings of Socrates,

and Plato, Aristotle, and later Matthew Lipman, Richard Paul, Robert Ennis and Peter

Facione (Lai, 2011). Lipman (as cited in Lai, 2011; Ab Kadir, 2017) defines CT as a

thinking focus on "well-developed judgement based on criteria, self-assessment, and

context sensitivity." (p.6; p.80). Paul (as cited in Lai, 2011) affirms that CT is "disciplined, self-directed thinking that exemplifies the perfections of thinking appropriate to a particular mode or domain of thought." (p. 6) Ennis (as cited in Ab Kadir, 2017) proposed that CT is a significant form of thinking to make decisions relative to beliefs and further actions based on reflexivity and reasonability (p.80). Facione (as cited in Lai, 2011) states that CT refers to a way of purposeful reflective judgement which involves the process of evaluation, analysis, interpretation, making inference and explanation (p. 6). Generally, this approach reports not only an observable set of skills but also about personality which should have critical thinkers.

Defining Critical Thinking "Skills" and "Dispositions". In the cognitive psychological approach, CT is defined mostly through the set of skills and strategies which are closely related to the demands of the current labor market. For example, Halpern (as cited in Lai, 2011) considered CT as a skill which is with the help of cognitive process of thinking and effective strategies to reach the proposed results (p. 8). Sternberg (as cited in Lai, 2011) defines CT as "the mental processes, strategies, and representations which people use to solve problems, make decisions, and learn new concepts" (p. 8). Another definition with personal characteristics in this approach is Willingham's (as cited in Lai, 2011) explanation that reports about the importance of being open-minded, dispassionate and rational to make conclusions and solve problems based on evidence, facts and analysis (p. 8). Even though this approach tries to limit the set of skills, the personal characteristics remain as complementary to provide the whole picture of critical thinkers.

The educational approach was developed on the basis of studying and observing classroom practices (Lai, 2011). This approach is based on Bloom's Taxonomy and a revised version includes six basic and fundamental skills which are remembering, understanding, application, analysis, evaluation and creating (Naiditch, 2017, p. 8). The

first three skills, remembering, understanding, and application, are defined as basic and lower order thinking skills (Knight & Robinson, 2019). The three highest levels of thinking analysis, synthesis, and evaluation are defined as higher-order thinking and referred to as CT (Knight & Robinson, 2019; Lai, 2011, p. 7). Further, these broad skills could be divided into subskills (Naiditch, 2017) as long as the learning process is deeper (Knight & Robinson, 2019). Knight and Robinson (2019) report that deep learning complements making inference, finding evidence, proposing alternatives, and the judging of knowledge and skills according to criteria (p. 7). Naiditch (2017) provides an explanation of subskills for the synthesizing process, students should study different perspectives and find their meaning for making conclusions and presenting as one idea or product (p. 8). Overall, the explanations for those three higher-order thinking skills are various and broad which makes further conceptualization and implementation of CT differ depending on context.

From these three approaches, we can see that CT is not only a set of skills, but also personal characteristics which are called as dispositions. Studies also point out that critical thinking is defined as skills (abilities) and dispositions (attitudes, characters) (Lai, 2011; Mok & Yuen, 2016; Fabian, 2017). Moreover, according to previous studies, a person should possess both abilities and dispositions to be effective in the critical thinking process (Robinson & Knight, 2019; Fabian, 2017; Mok & Yuen, 2016). Employers and educators set a high value on both skills and dispositions, because possessing CT skills is not enough and objective because ethical use of them is more significant (Facione, 2000). The list of important and frequently meeting skills and dispositions was provided in the (Table 2). Therefore, including both skills and dispositions into the learning and teaching process is vital for the effective engagement of CT because of their interdependence.

Table 1.

Skills and dispositions for critical thinking

Critical thinking	
Skills	**Dispositions**
"analyzing arguments, claims, or evidence; - making inferences using inductive or deductive reasoning; - judging or evaluating; - making decisions or solving problems. - asking and answering questions for clarification; - defining terms; - identifying assumptions; - interpreting and explaining; - reasoning verbally, especially in relation to concepts of likelihood and uncertainty; - predicting; - explanation; - self-regulation; - seeing both sides of an issue."	"open-mindedness; - fair-mindedness; - the propensity to seek reason; - inquisitiveness the desire to be well-informed; - flexibility; - respect for, and willingness to entertain, others' viewpoints; - habit of planning; - being impartial; - suspending judgment and taking a stance when warranted; - judgment of credibility of claims, and evaluation of judgments; - self-confidence; - systematicity; - analyticity; - cognitive maturity of judgment. The negative bad habits - dishonest (e.g. in theuse of data), - intolerant (e.g. of opposing ideas), - inattentive (e.g. to implications of proposals), - haphazard (e.g. procedurally), - mistrustful of reason (e.g. hostile toward sound scientific inquiry), - indifferent (e.g. toward new findings), - simplistic (e.g. naively dualistic)".

Note: List of skills and dispositions from Alazzi (2008), Fabian (2015), Guleker (2015), Lai (2011) and Facione (2000).

The Delphi Report conceptualization of CT provides an extensive explanation. The

definition was developed by 46 international cross-disciplinary experts with the purpose of

use in education for instructions and assessment (Facione, 2000).

We understand critical thinking to be purposeful, self-regulatory judgment which

results in interpretation, analysis, evaluation, and inference, as well as explanation

of the evidential, conceptual, methodological, criteriological, or contextual

considerations upon which that judgment is based... CT is essential as a tool of

inquiry. As such, CT is a liberating force in education and a powerful resource in

one's personal and civic life... While not synonymous with good thinking, CT is a

pervasive and self-rectifying human phenomenon" (APA, 1990, as cited in Facione,

2000, pp. 7-8; Fabian, 2015, p.3).

The definition refutes the similarity in meaning with "good thinking" and defines

CT as making judgment by taking into consideration evidence, concepts, methods, criteria

and context. Moreover, from this definition it is clearly seen that critical thinking is not

only developing high-order thinking skills, but also personal development as an identity

who is aware about his or her significance and role in society.

The dispositions were described as the separate definition mostly as characteristics

which should possess for developing CT. The American Philosophical Association (APA,

1990, as cited in Facione, 2000) Delphi researchers rejected including dispositions within

definitions because of their "eulogistic and regularizing" role thus the separate description

was provided of the critical thinker:

The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason,

open-minded, flexible, fair-minded in evaluation, honest in facing personal biases,

prudent in making judgments, willing to reconsider, clear about issues, orderly in

complex matters, diligent in seeking relevant information, reasonable in the

selection of criteria, focused in inquiry, and persistent in seeking results which are

as precise as the subject and the circumstances of inquiry permit." (APA, 1990, as

cited in Facione, 2000).

The description highlights that the personal characteristics should be "habitual" and making judgement should be based on rationality and constant inquiry. In light of the abovementioned different definition of CT, it is observed the complexity and multifaceted nature of the concept. Moreover, it is important to remember that most of the conceptualizations were developed within the Western context which is defined as distinctive in comparison with the Eastern world.

Teachers and Critical Thinking

Critical Thinking and Culture. Implementing changes, reforms, and innovations in education are the cumbersome processes that require complex and systematic approaches for successful realization. A study by Michael and Fullan (1992) "Getting reform right: What works and what doesn't" provided seven orientations that should be fully and jointly integrated into action to receive intended changes. It is important to note that the fourth orientation, "change is resource-hungry" (p. 750), emphasizes the significance of the teacher as a determining element of educational reforms (Michael & Fullan, 1992). Teachers play a significant role in introducing changes in schools and classroom lives (Allamnakhrah, 2013). Therefore, the main focus of this study is teachers as agents of changes who could be considered as essential for the effective infusion of educational innovations.

Previous studies report that teachers' and students' understanding of critical thinking could be influenced by macro-contexts such as culture, policy, economy, ideology, and society (Baildon & Sim, 2009; Chen & Wen, 2018; Mok & Yuen, 2016, Moon, 2008). The expert, Richard Nisbett (2003, as cited in Burkhalter, 2016), in his work "Geography of Thought" identifies differences between the thought processes of the Eastern and Western worlds, which is directly connected with cultural impact on cognition (p. 4). According to Nisbett (2003, as cited in Burkhalter, 2016), one of the examples

shows that Western students prefer to think in different ways than Eastern students (p. 5).

When students asked about the association with a cow from the picture with a chicken and

grass, Western students might say "a cow and a chicken" because of classification as

animals, and Eastern students say "a cow and grass" to show the relation as demand on

food and cow's surroundings (Burkhalter, 2016, p. 3). Thus, the thinking process of two

worlds is distinctive which has an impact on perception, understanding and interpretation.

Another culturally and contextually challengeable aspect is learner-centered

education (LCE), which is considered as an appropriate and fundumental learning style for

developing critical thinking (Burkhalter, 2016; Lai, 2011; Schweisfurth, 2013). LCE is

based on the principles of progressive education, problem-based or inquiry-based learning,

constructivism, and child-centered learning (Lai, 2011; Schweisfurth, 2013). International

Baccalaureate (IB), the focus of this study, is one of the adherents of a learner-centered

teaching style (IB, 2017). Along with the LCE style, implementation of CT could be

challengeable because approaches of LCE are mostly developed on the basis of Western

theories (Lattimer, 2015). It could be clearer that child-centered pedagogy with more

individualistic values (Guthrie, 2018). The implementation of LCE within the collectivism

context, as in Asian and African countries, could be in a different form and interpretation

(Guthrie, 2018). The culture of the country or system has a significant impact on classroom

life (Guthrie, 2018; Alexander, 2001). For example, previous studies of LCE in most Asian

and African countries report that reforms have failed and identified less significant changes

in classroom practices (Guthrie, 2018; Lattimer, 2015; Schweisfurth, 2013). Thus, the

main elements of LCE as constructivist instruction and inquiry-based learning with an

appropriate learning environment for developing CT could be implemented and interpreted

in different ways depending on the context.

It is clearly seen that CT encourages specific teaching and learning where culture not only state should be taken into consideration but local culture and even culture of a system is also significant. It should to be recognized that critical thinking itself, and the way it is represented, is directly related to the surrounding culture (Moon, 2007). It has been proven that critical thinking comes from Western culture, and when learners from other cultures try to understand it from their perspective, it is very hard to understand because of their background that differs from Western culture (p. 127). The broader example for a different cultural and contextual understanding of CT can be found in a study by Durkin (2004, as cited in Moon, 2008), he conducted an "intensive interview" with 67 students, some of whom were English students, and lecturers from East Asia. These students from East Asia had difficulties with argumentation in accordance with Western norms such as the application of "rigorous and strong CT, polarized linear logic and wrestling debate" (Moon, 2008, p. 61). The notion, "referencing and ownership of ideas" of CT, was also identified as a difficult and new phenomenon (Moon, 2007, pp. 61-62). The closely related concepts to CT as argumentation, referencing and ownership are understood in different ways.

Another example of a cultural difference within the Western world, but with "a subtler nature" is found in the study by Alexsander and Dochy (1995, as cited in Moon, 2007). During the comparative qualitative study of 54 adults from the United States and 66 from Holland, it is identified that the nature of beliefs and knowledge and their relations was dissimilar (Moon, 2007, p. 62). The group with adults from Holland sees "knowledge as within the realm of beliefs." which shows religious content, while the American group sees them as "beliefs as overlapping knowledge, but separate from it in some areas" (p. 62). The perception of knowledge and beliefs is an essential aspect of CT (Moon, 2007).

Thus, not only macro-context specific Western or Eastern geographical division could be an influential factor for the interpretation of CT, but it could be even within the one geographical part, state and further local and school. It is clearly seen that concepts such as teacher, system, culture, and context are interdependent and have great interrelation during the reforms specifically for phenomenon CT. Therefore, reform should not only focus on curriculum, teacher development, structure, policy, and regulations, but also "on deeper issues of the culture of the system" (Michael & Fullan, 1992, p. 749). The phenomenon of CT is interdependent from different factors and in a macro-level, culture has great impact which could vary depending on context.

Cross-Cultural Studies on Teacher's Conceptualization of Critical Thinking in Western and Eastern Contexts. Previous studies present teachers' social, cultural, and educational backgrounds as an influential factor for understanding and conceptualization of CT (Atkinson, 1997; T. Moore, 2013, as cited in Chen & Wen, 2019). As long as teachers' perceptions, understanding, beliefs, conceptualization, and actions have a direct effect on educational changes (Fullan, 2001, as cited in Baildon & Sim, 2009; Chen & Wen, 2018). Relative to teachers, in Howe's (2004, as cited in Chen & Wen, 2018) quantitative study through the survey it was identified that Canadian and Japanese teachers have different conceptualizations about CT which is explained because of cultural context (Chen & Wen, 2018). The results of the study show that Canadian teachers define CT as "cognitive strategizing," while Japanese teachers define it as "conscientious judgements and intellectual engagement" (Chen & Wen, 2018, p.84). Overall, teachers' backgrounds are an influential aspect of perceptions about CT, which further has a direct reflection on their teaching and learning approaches.

There are other comparative studies between US and Chinese teachers that also reported differences in perception of CT; the differences in perception are explained

through the influence of culture and attitudes within a specific context (McBride, Shen, Xiang & Wittenburg, 2002, as cited in Allamnakhrah, 2013; Chen & Wen, 2018). In a study by McBride et. al. (2002, as cited in Allamnakhrah, 2013), it is revealed that Chinese teachers had resistance to CT, while the US teachers had positive attitudes and supported its development as long as they had higher results in examinations (p. 200). Another comparative study by Chen and Wen (2018) was conducted through teachers' discussion of such aspects as their own definitions of CT, epistemological vs. ontological approaches to CT, agency, and professional identity in teaching experiences (p. 84). Chinese teachers define CT mostly as thinking and having positive and negative aspects, while American teachers tend to define cognitive skills such as analyzing, problem-solving, and making inferences (Chen & Wen, 2018). Researchers report that the differences in definitions could be because of the educational and institutional contextual influence (Chen & Wen, 2018). The definition provided by educational organization become as a teachers' own conceptualization.

Regarding epistemological and ontological aspects, according to Chen and Wen (2018), American teachers can easily provide examples from learning and teaching experiences in comparison with Chinese teachers, who describe it with high value but without connection to their own teaching experience (p. 86). Many American teachers have more freedom in teaching and developing professional identity, while Chinese teachers are often restricted and not supported (Chen & Wen, 2018, p. 87). Nevertheless, only one site from each country shows that teachers' background, education, and culture are impactful aspects of teaching practices. Cross-cultural studies provide not only defining disadvantages of the system but also, through comparison, and add depth for separate aspects or elements.

Teachers Conceptualization in Arab States. Teaching critical thinking is defined as a new and challenging concept, not only in East Asia countries but also in the Arab states such as Saudi Arabia and Jordan. In previous studies, in secondary schools of Saudi Arabia, it was observed that students have a low level of CT and classroom practices lack teaching and learning strategies for cultivating CT (Al-Qahtani, 1995; Al-Qmadi, 2008; Amen, 2008; and Al-Gabrey, 2007, as cited in Allamnakhrah, 2013). Arab states are also new in implementation of CT.

It is worth pointing out that the teaching culture of a university and the teaching way of educators as a role model reflects on pedagogical practices of teacher students (Manuel & Dutton, 2019). For example, Allamnakhrah (2013) conducted a qualitative case study in two Saudi Arabia universities with twelve pre-service teachers with different levels of GPA (p. 201). The majority of pre-service teachers emphasized the importance of CT for "solving problems, forming correct ideology and avoiding emotion for making decisions and using different aspects of life" (Allamnakhrah, 2013, pp. 201-202). Allamnakhrah (2013) explains that CT is significant for individuals and society and helps to make decisions based on analysis without emotions and to form national sustainable ideology to avoid harmful and destructive ideologies. For the conceptualization of CT, Allamnakhrah (2013) noted that teacher students defined CT as "a careful thinking" for making analysis, judgement, decision, solving problems (p. 202). However, while asking about developing or teaching strategies in the secondary pre-service teacher education programs, most of the students reported that they were not taught CT only one or two lecturers use questioning methods while others practice rote-learning style (Allamnakhrah, 2013). Arabian context shows the lack of infusion of CT into learning process for teacher students.

Further explaining a potential reason for the lack of CT in the Saudi Arabian university, Allamnakhrah (2013) noted educators reported "an overloaded curriculum" and "limited time to undertake professional development programs" (p. 205). However, the students believed that the main reason for lack of CT is a society which is "uncritical, religious and with different cultural views" (Allamnakhrah, 2013, p. 205). Overall, Saudi Arabian pre-service teachers found CT as a new and important phenomenon, but the teaching culture of university maintains a more traditional style and philosophy. In this case, the conceptualization of CT is more connected with the limited list of skills.

Another qualitative study was conducted in Jordan which is one of the neighboring countries with Saudi Arabia. Alazzi (2008) conducted interviews and classroom observation with twelve Jordanian secondary school social studies teachers. The main focus of the study was about familiarity and classroom practices of the social studies teachers from junior and senior high schools (Alazzi, 2008). The findings show that the majority of "participants were not familiar with formal definition of CT and its strategies" because while defining it they explained that "CT is an attitude, being skeptical, questioning, denying, redefining" (Alazzi, 2008, pp. 245-246). During observations of several lessons, Alazzi (2008) noted that "they did not use strategies in their instruction that support critical thinking" (p. 246). The explanation for the absence of CT in classroom practices were noted such things as "culture do not support teaching CT," class size (from forty students and more), inappropriate learning environment, avoidance of teaching controversial topics, overloaded curriculum which raises the lack of time for CT, content in textbooks focusing mostly on memorization, and insufficient pre and in-service training courses (Alazzi, 2008, pp. 246-247). Moreover, as Alazzi (2008) explains, the teacher manuals provide more information about curriculum and there are some ideas on the necessity of teaching CT as well as there is a lack of material on the way how to teach CT

(p. 247). Overall, there are similarities between the previous study in Saudi Arabia with

pre-service teachers (Allamnakhrah, 2013) and Jordanian in-service secondary school

teachers (Alazzi, 2008) as lack of CT education system, cultural (especially religious

aspect) influence on the teaching of CT, the necessity for infusion of CT into the education

system.

   Teachers Conceptualization in the United States. However, the lack of CT in

education is observed not only in developing countries or the Eastern world. According to

Elder (2003, as cited in Allamnakhrah, 2013), fostering CT in the curriculum of teacher

preparation programs is lacking not only in Saudi Arabia but everywhere. Even in the

country with the "father of CT" John Dewey (Nhat, Lien, Tinh, Hang & Trang, 2018, p.

432) in the United States, where the prominence of CT began as "reflective thinking" and

started by who considered that the fundamental purpose of education should be "learning

to think" (Alazzi, 2008, p. 249). For example, in the study by Paul, Elder and Bartell

(1997, as cited in Allamnakhrah, 2013) in California with teachers from thirty-eight public

schools and twenty-eight colleges and universities. The study found out that the

understanding of teachers about CT was "vague" which was reflected in their pedagogical

practices (Paul & et al., 1997, as cited in Allamnakhrah, 2013). The composition in percent

about the inconsistency between developing CT and teaching approaches in the

universities showed that only 19% of educators could explain what CT is and only 9% of

educators taught CT in their everyday classroom practices (Paul et al 1997, as cited in

Allamnakhrah, 2013, p. 205). Overall, probably because of the complexity, multi-faceted

features of CT, continuous debates around the conceptualization of CT, and difficulties in

measuring CT, the understanding and practical implementation for CT are still developing.

   Teachers Conceptualization in Kazakhstan. For the Kazakhstani context, there

were found two studies on CT by Burkhalter and Shegebayev (2010; 2012) and one

unpublished PhD thesis of Nazarbayev University by Tursunbayeva (2018). Burkhalter and

Shegebayev (2010) report that the phenomenon of CT is new and the number of teachers

has been growing about the understanding of CT. They assume that the whole Kazakhstan

education system was imbued with the culture of the Soviet education system with the

absence of CT and the learning environment contradicted the fostering principles of CT

(Burkhalter & Shegebayev, 2012). The question about novelty of CT for Kazakhstani

education context is equivocal.

Moreover, Burkhalter and Shegebayev (2012) suggest that the fixed culture of

pedagogical practices could be "a barrier" for infusion of "student-centered and

collaborative practices" which are the essential basis of developing CT (p. 59). However,

Fimyar (2015) states that both theory and practice were successfully integrated in Soviet

education system (p. 189) which shows the existence of the principles and notions of CT.

The accordance of previous education system pedagogical instruments and infusion of CT

is another debatable question.

Tursunbayeva (2018) in her research provides findings that English teachers have

various beliefs about CT as well as define CT as a "pedagogical approach" which helps to

improve language skills. Moreover, her findings are consistent with of the study made by

Fimyar & Kurakbayev (2015, as cited in Tursunbayeva, 2018) who assert the existence of

CT but in different terminology. Gimranova (2018) states that the participants of her study

define CT as "new concept" in their experience (p. 39) while Ibraimova (2017) in her

study, during the observation, identifies that teachers tend to ask lower-order thinking

questions which mostly focus on memorization and understanding (p. 48). Nurgzina (2019)

in her study about assessment practices reports that her participants constate due to the new

format of assessment, criteria-based assessment, they start to use the tasks for CT (p. 36).

Thus, it could be seen that the studies about the implementation of CT provide ambivalent attitudes towards the existence and practices which require further research.

In conclusion, the influence of context plays an important role on conceptualization of CT as seen through examples between large scale and macro level comparison between Western and Eastern contexts. However, there are some examples within Western counties which showed the existence of distinctiveness which could provide further reflection that there is a possibility of differences even within one country because of a variety of influential factors. From this section, it is clear that the research in the Kazakhstani context are limited and has potential to be further exploration.

Pedagogical Practices and Critical Thinking

This section focuses on two aspects that encourage and develop CT skills. The first one is about general principles for creating an appropriate learning environment for CT and the second is one about activities and techniques which develop CT skills and dispositions.

General Principles for Critical Thinking Pedagogy. There is not only one and right approach or strategies for teaching and assessing CT (Gul et al., 2014; Moon, 2007), however the previous studies state the importance of creating an active learning environment for students to develop CT (Simpson & Courtney, 2002; Velde et al., 2006, as cited in Gul et al., 2014). The teaching of CT can be conducted in three ways direct, indirect and a combination of direct and indirect. Direct teaching of CT happens as a separate subject while indirect one is infused into the subject. Halpern (2001, as cited in Lai, 2011) reports that indirect teaching is the most successful way while Bailin et al. (1999. as cited in Nhat, Lien, Tinh, Hang & Trang, 2018) states that combinational way is an effective one.

Theory of Knowledge. For example, the Theory of Knowledge (TOK) is a separate subject in International Baccalaureate (IB) which focuses on developing CT

(Gormley, 2017, Moon, 2008; Cole, Gannon, Ullman, & Rooney, 2014). The study by

Cole et al. (2011) in Australia with 63 schools with the IB program and with some

university undergraduates who had an online evaluation of CT. The findings of the study

concluded that students who had Theory of knowledge (TOK) subject in their school time

had higher results in external assessment than non-TOK students. Moreover, former TOK-

students had higher results in university examinations in comparison to non-IB students

(Cole et al., 2011). The TOK teacher reported that the TOK subject has an advantageous

impact on students not only in the academic level but it helps students to be reflective, life-

long learners and to explore different perspectives (Cole et. al., 2011). Therefore, it could

be seen that the positive impact of TOK subject on developing CT.

Student-Centered Approaches. The underlying approach for active learning is

student-centered approaches which are according to literature within the constructivist

learning methods as well as overlay the pedagogical practices of developing CT

(Burkhalter, 2016; Bonk & Smith, 1998; Paul, 1992, as cited in Lai, 2011). In this

approach the role of a teacher is more as facilitator (Collier et al., 2002; Pithers & Soden,

2000; Lai, 2011) who creates effective activities, appropriate physical and intellectual

environment (Collier et al., 2002). Therefore, constructivist learning with strengthening the

role of students is an essential way to develop CT.

Collaborative and Cooperative Learning Environment. Additionally, the other

highly emphasized instructional strategy is collaborative and cooperative learning (Abrami

et al., 2008; Bailin et al., 1991; Bonk & Smith, 1998; Heyman, 2008; Nelson, 1994; Paul,

1992; Thayer-Bacon, 2000, as cited in Lai, 2011). Collaborative learning could be

promoted through the techniques such as questioning, discussion, pair and group work

(Burkhalter, 2016). Promoting collaborative and cooperative learning is one of the ways of

"the deliberately encouraged interaction between students" (Moon, 2008, p. 132). CT is

"interactional participant activity" (Fabian, 2015, p. 7) or "social activity and process"

(Moon, 2008, p. 132) which develops to provide a constructive response, to respect others'

perspectives (Bailin et al. 1999, as cited in Moon, 2008), to become self-responsible

(Burkhalter, 2016). Thus, a collaborative form of interaction could be a way to show that

there could be different views and perspectives for the same ideas and each of them could

be important.

   Assessment. The most interdependent notion and influential on pedagogy of CT is

assessment. CT is defined as challengeable (Lai, 2011) because of its multidimensionality

(Bensley, Rainey, Murtagh, Flinn, Maschiocchi, Bernhardt, & Kuehne, 2016). Most

studies report the alignment of curriculum and final examinations is significant to avoid

negative influence on teaching approaches (Costa, 1991; Tener, 1995; Rodd, 1999, as cited

in Collier et al., 2002, p.37; Lattimer, 2015). To check CT skills, assessment should

contain "open-ended" and "ill-structured" problem types, "tasks that make use of

authentic, real-world problem contexts" which focus on not only knowledge delivery but

on the application of knowledge in a new context (Lai, 2011, p. 44). Bensley et al. (2016)

state that the explicit teaching of CT could negatively affect the robust assessment of

"skills, dispositions and metacognition" which consequence to low stake tests and student

motivation (p. 159). However, according to Rod (1999, as cited in Collier et al., 2002),

mostly teachers in order to respond to the demands of the "National Curriculum" focus

more on knowledge delivery than teaching "how to think" (p. 27). Additionally, it is

important to remember that assessment is not only reaching final points or providing final

grades. It could be a process of working which could be evidently presented in the rubrics

or criteria of assessment where the feedback is the inherent component (Moon, 2008).

Thus, the role of assessment takes the greatest position for developing CT.

Class Atmosphere. The atmosphere of class is one of the essential components to support an active learning environment with collaborative, constructivist approaches and using assessment as an encouraging strategy for developing CT. According to Fogarty (1997, as cited in Collier et al., 2002), it is essential to create a classroom where it will be an "emotionally safe and caring environment" and students could explore, investigate and inquire (p. 35). Generally, literature provides several components that should be taken into consideration for creating an emotionally and psychologically comfortable environment for students. The fundamental component for creating an appropriate atmosphere for fostering CT is "a place that will tolerate risk-taking" (Moon, 2008, p. 132). The place where students could express their opinion, the teacher smoothly directs to a discussion, dialogue, conclusion, and also shows openness for questions and students' contribution (p. 132). Tobin (1987, as cited in Collier et al., 2002) emphasizes the importance of providing time for thinking (p. 33) which is important for creating a challenging atmosphere where students not just deliver knowledge but elicit deeper knowledge (Moon, 2008). For example, according to Schafersman (1991, as cited in Snyder & Snyder, 2008), students need at least eight to twelve seconds to provide responses for CT situations. As well as the teacher should show that all types of answers could be accepted despite its correctness which could be promoted with constructive feedback from the teacher (pp. 83-85). Moreover, providing autonomy where students could be proactive, make an independent rational judgement and apply them (Moon, 2008, pp. 85-86).

Last but not least of important components is to help students form an appropriate level of academic self-esteem which has an influence on CT processes. According to Moon (2008), self-esteem impacts students coping strategies during dealing with CT tasks (p. 86). For example, students with low self-esteem could see the "learning as problem", while with high one could find a distinction between problem and "feelings about the whole self"

(Moon, 2008, p. 85). Thus, the emotional and psychological atmosphere in lessons is an inalienable aspect of the learning environment to foster CT.

Classroom Infrastructure. To organize an active learning environment, classroom infrastructure should be also appropriate. For example, Collier et al. (2002) report the importance of classroom for active-based lessons which requires separate and moving tables, computers and access to the internet for individual and group projects, large screen monitors for presentations. Fung (2014) also states the importance of movable tables and chairs for "quick and quiet" formation of groups (p. 48). Hitchcock (2000, as cited in Collier et al., 2002) emphasizes technologies as a necessary component of the classroom for developing students' motivation, academic and cognitive skills which are foundational for higher-order thinking skills. Moreover, several studies state the positive effect of technology-enriched classrooms on the development of CT skills (Hopson, Simms & Knezek 2001; McMahon, 2009). Generally, infrastructure or physical environment or surrounding environment is another factor for fostering CT.

The Teacher and Teaching practice. The main person who creates the above-mentioned components of the learning environment for CT is the teacher. As well as the cultivation of critical thinkers, the demand of the 21st century, requires significant changes in pedagogy and curriculum from teachers and schools.

As previously mentioned, the concept of critical thinking is complex at best and its conceptualizations are different depending on context (Baildon & Sim, 2009). According to Kember (1997), classroom practices that only follow guidelines from the already prepared educational document do not encourage and create the learning environment for developing CT (Pithers & Soden, 2000, p. 247). Adnerson (2015) also states that educational standards highlight the importance of cultivation CT but during providing conceptions of CT they reduce it "to a set of transferable skills" (p. 83) which includes a

list of "definable and measurable skills" (p. 84). Further, this conceptualization could

influence the teaching and learning approaches of teachers (Anderson, 2015). Teaching

critical thinking could be found "controversial and confusing" for many teachers because

of its wide range of definitions and suggested practices (Bensley & Murtagh, 2012, as cited

in Schmaltz, Jansen, & Wenckowski, 2017, p. 459). Therefore, developing contextual

definitions for CT (Moon, 2008) and preparing teachers with strong knowledge in critical

thinking have become increasingly important in the present days.

According to Unks (1985), if teachers were not taught CT or do not possess CT or

lack of CT skills they could not teach CT (Allamnakhrah, 2013). It is generally thought

that the teacher is often influenced by his own background of university culture. Teachers

transfer their own learning practices into their teaching practices which were experienced

as a learner (Burkhalter & Shegebayev, 2012) and sometimes one of the educators of

university time could be used as a role model in pedagogical experience (Manuel &

Dutton, 2019). Additionally, previous studies report that the teachers who had separate

training on how to teach CT were the most effective (Cotton, 1991; Abram et. al., 2008,

Creswell in Robinson & Knight, 2019). Also, Elder (2005, as cited in Allamnakhrah, 2013)

states that CT must be the root of any teacher training programs because of its effective

influence on teaching within any subject. Moreover, according to Toy and Ok (2012)

teaching of CT should be in "all educational settings" as well as "within all courses and

subjects as a way of learning" which requires more time and practice (p. 52). Mayer (1986,

as cited in Moon, 2008) suggests that the development of teachers' CT will be effective if

it is within their own teaching disciplines and context. Specifically, teacher

epistemological beliefs should be sufficiently developed "for achieving depth in CT"

(Anastasiadou & Dimitriadou, 2011, as cited in Allamnakhrah, 2013, p. 200) otherwise

they will use a rote-learning approach (Moon, 2008). Thus, a teacher's educational

background will be echoing in their pedagogy which has a potential influence on students'

outcomes and further development.

In conclusion, the general principles for encouraging CT are connected with such

aspects as teaching and learning strategies, collaborative working, assessment system,

teacher background and infrastructure. The fundamental of the principles is creating active

learning environment where teacher acts as the facilitator.

Activities and Exercises for Developing Critical Thinking.

This section is focused on activities and exercises that can be used to prompt CT.

The infusion of these activities and exercises into subject should be adopted on the basis of

teacher judgements by taking into the consideration differences of context, students

background and abilities.

Questioning. The widely used technique for developing CT is questioning

(Almulla, 2018; Marzano, 1993). The questions should be "open-ended" (Browne and

Freeman, 2000, as cited in Almulla, 2018, p. 21), "appropriate" (Collier et al., 2002, p. 16)

and stimulating (Haynes & Bailey, 2003, as cited in Snyder & Snyder, 2008, p. 95)

questions to develop students' critical thinking. According to Collier et al. (2002), mostly,

teachers tend to focus on low-level thinking questions for checking comprehension which

is also observed in the Kazakhstani education context (Ibragimova, 2017). Browne and

Freeman (2000, as cited in Almulla, 2018) state that constantly asking the open-ended

questions increase students' motivation and develop skills such as working with different

materials and finding the credible one as well as developing CT skills (p. 18). These ideas

were confirmed in the study by Almulla (2018), students significantly developed CT skills

by asking constantly open-ended questions. Questioning techniques could be integrated

into different forms of discussion (Brown & Kelley, 1986; Hemming, 2000, as cited in

Almulla, 2018) and dialogic approaches (Hajhosseiny, 2012). Mayer (1986, as cited in

Moon, 2008) also suggests posing "controversial and difficult" questions to raise

discussions (p. 150). Thus, the questioning technique is one of the ways for developing CT

as well as applicable one within different activities.

     Collaborative Activities. Questioning and discussion are broad techniques that

also could be supported by various specific activities. Abrami et al. (2008, as cited in Lai,

2011) state lessons accompanied by collaborative activities showed a significant effect on

CT. According to Bonk and Smith (1998, as cited in Lai, 2011), activities as "think-pair-

share, round-robin discussions, student interviews, roundtables, gallery walks, and

'jigsawing'" could be used for encouraging active and collaborative lessons (Lai, 2011, p.

35). Additionally, activities with graphic organizers as a concept map, argument diagrams,

fish-bones, KWL charts (explanation for abbreviation - students identify what they already

know, what they want to know, and what they have learned upon completing instruction)

also can be used in a different subject for developing CT (Bonk & Smith, 1998; Van

Gelder, 2005 as cited in Lai, 2011, p.36). For example, in the study by Fung (2014),

creating and analyzing concept maps with students foster collaborative working and

critical discussions. Generally, specific activities could be adopted and integrated into

strategies and subjects.

     Group Work. Mostly group works have the common structure in the organization.

For group discussions could be used "the three-part model of Sternburg and Swirling"

(2005, as cited in Hajhosseiny, 2012) which is described as following:

     ...teacher first introduced new concepts and gave information by the lecturing

     method (session 1:15), then at the end of this session and for opening the second

     step, some questions were posed which were forming the basis for creating two

     opposite groups and so students, based on their collected information and on the

     basis of their in-group discussions, evaluated and critiqued each other's' viewpoints

(group discussions). Meanwhile, the teacher was trying to guide students' attention

to some delicate points, posing some questions and inquiries. In the third step, the

teacher and the students were evaluating and making conclusions from discussions

and different viewpoints. (Sternburg & Swirling, 2005, as cited in Hajhosseiny,

2012, p. 1361).

From the description, it could be seen the role of the teacher who creates deliberate

encouragement of a collaborative and debatable learning environment and guides students

for making targeted conclusions. Gage and Berliner (1992, as cited in Hajhosseiny, 2012)

state that discussion of controversial issues with integration of questioning techniques

provides students' active participation, increased motivation, higher tendency to easily

express opinions which are the fundamentals of CT promotion. According to the study

made by Hajhosseiny (2012), the discussion has an advantageous impact on developing CT

dispositions of students as to improve their self-confidence and open-mindedness. Thus,

there are specific activities that can be applied in any subject but contextual and cultural

features require appropriate adaptation.

The study conducted by Fung (2014) in two schools of Hong Kong defined that

promoting CT through group work activities had a significant positive impact on students'

CT skills. According to Kennedy (2002, as cited Fung, 2014), Hong Kong ordinary schools

were observed with a lack of promotion of CT. Reasons for CT deficiency were mentioned

in the assessment system which pushes for rote-learning pedagogy and cultural

peculiarities which keep out expressing opinion and obligate to "respect authorities"

(Kennedy, 2002; Biggs, 1996, as cited in Fung, 2014, p. 46). From 2001 Hong Kong

schools started the promotion of interactive learning and infusion of CT (Fung, 2014).

During in-depth interviews teachers provided some insight about the implementation of

collaborative learning approaches and CT. Teachers affirmatively emphasized significant

changes after the implementation of group work activities. They identified the positive

influence of seating arrangement and movable tables on active learning as well as

highlighted the changing role of students as active self-directed learners and teachers as a

guide who directs and supports the discussions. Additionally, they observed that high-

ability students showed the willingness to support low-achievers. For school support it was

emphasized that providing an opportunity to make 70 minutes duration lessons (double

lesson), support of experienced teachers for designing plans and identifying objectives for

effective group works, continuous support of school administration especially for relative

to workload. During the implementation period teachers were provided with workload

reduction which increased capacity for effective creation and evaluation of collaborative

tasks for students. Finally, the collaborative learning environment provided "a cooperative

and competitive atmosphere" (Fung, 2014, p. 57). The test results of CT and final products

group work activities presented that the applied strategies were effective for creating a

collaborative learning environment and developing CT skills of students (Fung, 2014).

Thus, contextual and cultural realities could be reflected in the learning and teaching

processes.

      Wait Time. Previously, it was mentioned that time is an important factor for the

promotion of thinking skills. Tobin (1987, as cited in Collier et al., 2002) who highly

emphasized the importance of time, developed the concept *wait time* when a teacher used

short pauses by asking rhetorical questions, reflecting, making discussion between

different topics. Other activities with focus on time which create a challenging

environment are "quick think" and "time pressure" which raise the efficacy in speed and

engagement. The activity "quick think" could be used for three- or four-minutes group

discussion about some issue and one of the students makes notes (Moon, 2008). The

activity "time pressure" focuses on one group as providing them the "chair" position and in

a short period of time they should provide a conclusion, a decision, or a judgment which

fosters CT. Most of the time activities are in oral form and another effective oral activity is

debate. The group of students should be divided into two groups and both groups prepare

information for and against position (Moon, 2008). Moreover, Iman (2017) states the

significant and advantageous impact of debate is not only for speaking skills but also for

CT skills. Activities with a focus on time are also the way for active engagement and

promotion of CT.

      Reflection. Reflection can be also used as an enhancing technique of CT. Moon

(2008) asserts that most teachers use reflection as an activity for personal purposes while it

could be used for controversial, questionable and poorly designed ideas for developing CT.

There is a variety activity on reflection such as secondary reflection (reflection on earlier

reflection), personal development planning (self-appraisal about experience, progress,

decision, etc.), and reflection on critical incidents, case study or story (use various

reflection techniques in accordance with lesson purpose and with focus on CT (Moon,

2008). Moon (2008) suggests several sources on how reflection could be used for

developing CT: Brookfield (1998), McDade (1995), McDury and Alterio (2003). The role

of reflection for developing CT is underestimated while it is a broad strategy that could be

used not only for developing CT skills but also dispositions as well as metacognition.

      Writing. Previously most of the approaches, activities and techniques were focused

around oral ways of working for developing CT. Another way to foster and develop CT is

writing. Moon (2008) states that from the writing it could be observed "the quality of

thinking" and it is the "central strategy" for developing CT (p. 133). The writing should

not start at once from an essay, for example, students can briefly write summaries of

arguments (Bonk & Smith, 1998), evaluate the evidence and write a conclusion, or

summarize the evidence, make notes on "the different view of topic from different

perspectives," develop criteria and make a written judgement, make the second judgement for another or others viewpoint (Moon, 2008, p. 152). The next higher stage when students should adjudicate different views from concept maps, notes and discussions, practice peer review, exploring CT representations from prepared essays, determining the importance of referencing through paraphrasing, showing authorship, evaluating sources, communicating academic way (Moon, 2008). More general writing exercises are short-answer tasks, making notes during reading and lecturing and then comparing with others, recognizing text structure and identifying main ideas and evidence, after some periods editing own work on clarifying and developing, making reflective commentary (pp. 154-155). The above-mentioned practices could be used not only for individual working but also adapted for group works (Moon, 2008). Thus, the written exercises could be divided into several stages depending on the student's background and used as one of the effective ways for developing CT.

Assessment as a Strategy. Previously it was explained that assessment is a fundamental driver of classroom practices (Tener, 1995; Rodd, 1999; Costa, 1991, as cited in Collier et al., 2002, p. 37; Lattimer, 2015, Moon, 2008) as it impacts on fostering CT. Assessment could be used not only as a final point but as a strategy which encourages CT. There are such ways as developing criteria assessment, peer assessment and self-assessment. In order to develop assessment criteria by students they should understand what CT is (Moon, 2008). The elements of CT should be chosen for creating relevant evidence for making judgment (p. 149). Another method where students understand and learn to use CT in negative and constructive ways is peer assessment (Moon, 2008). In self-assessment students assess their own works according to existed criteria as well as develop metacognitive skills (Moon, 2008). Thus, assessment is not a tool of measurement but strategy and technique for fostering CT.

In conclusion, there are different strategies, activities and exercises to foster and encourage CT for students which could be used in different subjects and contexts. The promotion of CT could be enactedin different ways through specific activities, oral communication, writing form, reading and assessment. However, during adaptation and integration into the subject it is important to remember the distinction of context as the state, local and school culture, students' background and abilities. Overall, it is clear that while there are many studies and strategies to understand critical thinking in schools, there is a lack of research in Kazakhstan as well as limited information about school teachers' perceptions and practices. As such, this study will address these important points. In the next chapter, I present methodological parts of the research by discussing about research design, site and participants sample, data collection procedure, limitations and ethical considerations.

Chapter III: Methodology

The way we see things is affected by what we know and what we believe. - John Berger

The purpose of this chapter is to explain the qualitative research design used to explore teachers' conceptualization of critical thinking (CT) and their pedagogical practices for developing CT for students. This chapter provides information on the research design, sampling methods, participants profile, data collection process. Moreover, description of ethical considerations and limitations of the study are provided.

Research Design

Qualitative research provides the opportunity to multiple realities which are not focused on defining cause, effect and generalizability (Lichtman, 2006). It is focused on extracting the meaning and exploring social phenomena through participants' experience (Leavy, 2017; Merriam, 2019,). The purpose of the study is broad and general (Creswell, 2012, p. 16) focused on participant's experience. Rather than numbers in quantitative study, detailed description is the product of qualitative study that is coming from inductive analyzing (p. 5). Since the main focus of the study was to explore the teachers' conceptualization and their pedagogical practices for developing CT of students, a qualitative approach was chosen as the most suitable. In order to provide detailed and in-depth understanding of the human experience (Lichtman, 2006) and to create an extensive and appropriate description of the interpretation of people. Qualitative study advantageously provides the opportunity to study the human experience about phenomenon.

Specifically, a qualitative case study was chosen as research design which is the most appropriate approach to explore a phenomenon (Creswell, 2012; Lichtman, 2014; Lewis-Beck, Bryman, & Futing Liao, 2004), such as CT in a detailed and specific

exploration of a case within the Kazakhstani context. Studying participants' experience

through the case study provides answers for the study purpose and research questions

(Creswell, 2012, p. 16). Moreover, Creswell (2012) refers to case study as it is most

appropriate to explore "a bounded system" (p. 465). Under the bounded system is an

understood such things as site (only one school), and a proposed group of participants

(only from the Department of Humanities, English speaking teachers) because they are

"information rich" (Creswell, 2012). Thus, a qualitative study with case study approach

was chosen as the research design to provide the insight of the phenomenon.

Research Site Selection

The Nazarbayev Intellectual School was purposely selected as the research site.

This site was selected for two primary reasons. The first reason that I chose this site and its

participants are "information rich" (Patton, 1990, as cited in Creswell, 2012, p. 206) which

means that the site and participants were chosen "intentionally" to explore the central

phenomenon in-depth (Creswell, 2012). This school works according to international

standards and their experiences are shared with other secondary schools of Kazakhstan

(Shamshidinova, Ayubayeva & Bridges, 2014). The programme of this school is based on

the International Baccalaureate (IB) which focuses on developing approaches of learning

and has separate standards for their assessment (Gormley Jr, 2017; IOB, 2014; 2017;

2018). Thus, the purposeful site and participants selection could provide insight into a

standard practice experience in school specifically in the Humanities department. The

second reason I selected this particular NIS school, referred to within this study as "NIS"

was because of a previous history with the school. My former relationship allowed me to

have easy access to the site and the school Principal showed his willingness to support

research and further cooperation. While an asset in many ways, I do recognize that having

a connection to the site would potentially also be a limitation, which I discuss in the

limitation section. The confidentiality of the school's full name is kept to increase

confidentiality of participants.

Sampling

Qualitative study does not focus on generalization but to study the central

phenomenon in-depth that is why participants are also chosen intentionally (Creswell,

2012). Purposive sampling was used for participants selection because they could "provide

useful information" and "help to learn" about infusion experience of CT into the

curriculum within Kazakhstani education context (Creswell, 2012, p. 206). There are many

subjects and departments at the school. I was seeking to develop a case study which is

bound to one department with teachers who had experience with critical thinking. In this

way the participants would be familiar with the topic. Due to these, participants

specifically from the Department of Humanities are familiar with critical thinking and have

experience. The curriculum of the Humanities department fosters and emphasizes critical

thinking skills which are encouraged through the learner-centered style, assessment

standards and even specific disciplines as Theory of Knowledge (TOK) (IBO, 2014;

Moon, 2007). The similar characteristics of the participants were teaching subjects in

English language within the same department and residents of Kazakhstan (English as a

teaching and second language) but different humanitarian subjects (history, social studies,

economics, theory of knowledge, anthropology).

Sampling and Constructivism. Additionally, this sampling teachers with various

backgrounds (e.g., Soviet education) meant an opportunity to explore through the lens of

constructivism. According to Berger and Luckman (1966), culture and society have a

direct impact on the formation of people's realities (Irby, Boswell, Searby, Kochan, Garza,

& Abdelrahman, 2020). Constructivism states that each individual constructs their own

reality. There are different and extensive lists of influential factors on the construction of

realities, such as age, gender, socioeconomic class, and geographical location (Irby et. al, 2020). The analysis adheres the principles that there is no one reality but it can coexist when equally accepted interpreters disagree (Guba and Lincoln, 1994, p. 113). Thus, all realities should be taken into consideration for exploration different perspectives.

Recruiting Participants

The recruiting process of the participants started with permission of the principal. I contacted in person to explain the research purpose and approached with an overview of research and consent form for Principals (Appendix A). I got permission first from the principal to conduct research on site allowing teachers to engage in the study if they so choose. Then I contacted the Teaching and Learning Coordinator in order to help in recruiting participants who were employed at school full time and teach in English language. Teachers who teach in English have experience in foreign professional development, and work with team teachers who have foreign educational background and have access to resources in English language. The coordinator was provided with a prepared version of the invitation message for teachers (Appendix B) and she emailed the teachers from the Humanities department. In this way, I purposefully sought to increase confidentiality in that potential participants contacted me directly instead of going through the coordinator. The coordinator did not know who contacted me. Teachers voluntarily could contact the researcher if they are interested in participating. The contact of the researcher was in the invitation message (Appendix B). In previous studies about teachers' perception and practices on CT in the secondary schools of Jordan and Saudi Arabia, 12 teachers were found as sufficient and interviewed but as an additional tool of those studies were an observation and questionnaire (Almulla,2018; Alazzi, 2008). Twelve English speaking teachers from the Humanities department manifested a desire to participate in my study. Therefore, I defined that the number of participants was not small as well as not

excessive for this study. As an additional tool of research, I choose document analysis.

Before the interview I have made document analysis in order to be knowledgeable about

the curriculum of each participants' teaching subject.

Data Collection Procedure

Before starting the research as a representative of Nazarbayev University Graduate

School of Education (NUGSE) the ethical considerations procedures were followed. All

studies which involve human beings should be approved by the NUGSE Research

Committee (NUGSE, 2019). The first step was getting my Ethical Review approval from

NUGSE and thesis Supervisor on methodology was granted on starting the research

process. The process of negotiation with gatekeepers and selecting and interviewing

participants in the research site took place from December 2019 to February 2020. After

receiving the participation agreement, I started to explore the curriculum of each subject of

the participants to add in-depth in the interviews. The first interview was on December 20,

2019. There are different methods to collect data in qualitative research but mainly the

gathering instrument for information accumulation was face-to-face semi-structured

interview which was initially supported with document analysis.

Document Analysis

Document is considered as an important source of information in order to

"understand central phenomena" (Creswell, 2012, p. 223). Moreover, in order to better or

more fully address or answer to RQ I decided to elicit documents from participants. In this

way, it would provide more details to draw on in the interviews and allow for more quickly

getting into details of their experience. The school has a special online platform where all

teachers actively document the teaching process. After getting the permission "to use them

from the appropriate individuals in charge of the materials" (Creswell, 2012, p. 223) I

received temporary access to the platform. I made notes and analyzed the curriculum

within periods from September 2019 to January 2020 as well as more attention to

approaches to learning, lesson plans and assessment system. I explored those lessons

where there was focus on CT and looked on activities and exercised which were mentioned

in curriculum as well as how teachers test those CT skills.

Interviews

Semi-structured interviews were chosen as a main and appropriate instrument to

answer the research questions, which focus on teachers' understanding and experience

about implementation of CT. According to Creswell (2012) and Leavy (2017), semi-

structured interview is with open-ended questions and with absence of rigorous list of

questions but with some main questions to preserve the research direction. Multiple

researchers, such as Given (2008) and Menter et al. (2011), explain interviews are the best

way to study about participant's perception, understanding and experience. There are

different types or "modes" of interviewing such as face-to-face, telephone, and video

(Menter & et.al., 2011). This study was based on a face-to-face interviewing.

After getting permission for research and sending invitation letters with research

purpose and requirements to the teachers of the Department of Humanities, participants

who had responded to the invitation were met for further information on the data collection

process. They got notification about their confidentiality and asked to sign the informed

consent form (Appendix D). Before conducting face-to-face interviews, the participants

were provided with a list of the main questions because it is an effective way in order to

gather qualified and useful information and they will have time to organize their thoughts

(Menter & et.al., 2011). Following Creswell's (2012) recommendation to have an

organized interview I made notes during the interview, it is essential to develop and use an

interview protocol (p. 225). For example, the interview protocol included primary

questions and follow-up prompts (see Appendix C). I used open-ended questions as

suggested by Creswell (2012) to provide more freedom for participants to share their

opinion. These types of questions also allow participants to potentially avoid the influence

of researchers and results of previous studies (p. 218). In other words, I did not want to

direct participants in their responses, I wanted to hear their own words. I wanted to let

them say what they wanted to say, and I followed up with additional questions to

understand more, or to clarify terminology. Mostly the follow-up questions were used to

clarify what the participants had stated. For example, after a participant would share, I

would explain my interpretation of what they said back to them to check that I understood

it correctly.

To standardize the information in interviews across participants, I followed Menter

et al.'s (2011) recommendation to use a list of main questions to cover the key topics.

These included: biographical information about the participants, questions regarding the

participants' understanding and experience of implementation of critical thinking. I used

open-ended questions to elicit relevant information and to gain greater insight as suggested

by Creswell, (2012) and Menter et al. (2011).

This type of interview is noted by Menter et al. (2011) as a flexible one allowing

further flow and order of questions to be adjusted depending on the course of an interview

to better explore the central phenomenon of this study through the participants' voices.

During the interview researchers should be engaged and make notes to have meaningful

and qualified answers as long as they start with tour questions then shift into main

questions which are supported with probes and follow-up questions to go more in depth

(Rubin, 2012). That is why the curriculum analysis participants' teaching subjects were

done for additional questions during the interview to get more details. The participants

scheduled the convenient time and location for the interview which lasted no more than 30

(thirty) minutes. The interviews were recorded and transcribed (Appendix F) with the

permission of the participants for further analysis. Participants were shared with analysis

and asked for comments if they wish to add or to make minor changes to confirm my

interpretation and summary

I tried to create an open and supportive environment with participants (Holosko,

2001). When I recruited participants to this study, most of them I had never met before

because of my three years absence on maternity leave. This kind of relationship has some

advantages such as free and trust conversation with a good amount of information, and

disadvantages such as fear about study's influence on their career. However, to avoid the

negative implications I followed the principles of Holosko (2001) and attempted "to

assume a value neutral and objective role during the course of the study."

Ethical Considerations

First of all, I have completed the Collaborative Institutional Training Initiative

Program (CITI Program) which verifies about proven knowledge in ethical rules of the

research in Social Science specifically in Education. Then I got approval for my study

from the NURSE Ethics Committee and Thesis Supervisor. The main ethical standards

relatively to study participants were explained such as awareness about purpose and aim of

the study, participation rules, confidentiality arrangement, possible risks, rights to

withdraw from the study or to omit any unwished questions during the interview

(Creswell, 2012, p. 23). This information was also written in the informed consent form

which later was signed by each participant. Moreover, they were informed that they were

not evaluated on their knowledge, professional skills and answers for interview questions.

Protection of confidentiality is an essential principle in research ethics codes of

conduct even if it plays a vital role for respecting human dignity in many cultures (Given,

2008). Especially for interview research, confidentiality is ethically important (Heggen &

Guillemin, 2012). Identities of participants were coded with pseudonyms Aidar, Nastya,

Alma etc. and without their description (Given, 2008; Glesne, 2011). Data collection

(transcription, audio records, notes during curriculum analysis, printed documents) were

protected in my computer with password and at home as well as available only for

researcher and supervisor. The hard and soft copies of data will be destroyed one year after

submitting the thesis.

Limitations

The most noteworthy limitation of this study is that I included participants who

teach in English. It is possible, or even likely, that teachers who teach in Russian and

Kazakh languages would have other insights regarding the conceptualization and

promotion of parts of implementation of CT. Moreover, the study was mostly based on

interviews while observations could have shown observable aspects connected with

pedagogical practices which should be explored in future studies.

Conclusion

In conclusion, this chapter provides detailed information on rationality of research

design, sampling, instruments, data collection and analysis procedure, and ethical

considerations. The further chapters will provide findings which were obtained with the

help of this methodology.

Chapter IV: Analysis and Findings

In this chapter, I present two sections addressing the research questions through analysis and findings. The first section provides the description of the data analysis process and the second section are the findings of my research. The data analysis section provides information about coding from the twelve interviews, defining categories and sub-themes, which were further developed into main themes.

In the second section--finding of my research--these themes are arranged into two subsections. The first group of themes connected with findings about conceptualization of critical thinking for Humanities teachers in one of the Nazarbayev Intellectual Schools (NIS) with the International Baccalaureate (IB) programme. The second group of themes relates to teaching practices for development of critical thinking (CT) employed by Humanities teachers for middle year programme (MYP) and diploma programme (DP) students in one of the NIS schools with the IB programme.

Data Analysis

The next step after the interview was to make transcribing (Appendix F) which continued with dividing the text into segments and coding of the information based on research questions (RQ) (Bhattacherjee, 2012, p. 114; Creswell, 2012; Gläser & Grit Laudel, 2013). As suggested Schreier (2012, as cited in Gläser & Grit Laudel, 2013), development of categories could be in two ways deductive and inductive. The coding process I started inductively by searching the keywords, phrases and numbers within the text segments (Gläser & Grit Laudel, 2013) which was done by hand (Appendix E). After finishing the repeated reading and coding process further I developed categories, minor themes (subthemes) and major themes (Creswell, 2012, p. 239) (Appendix E). I have developed a table in Excel programme (Appendix E) for creating one whole document for all codes of twelve interviews. The description of one of the examples for coding process:

for the theme definition of CT from teachers I found 102 codes which later by analyzing,

comparing, contrasting the relevance of codes and text segment were identified (Appendix

E) and developed six categories ("assessment, short, questioning, perspectives, connection

with disposition, all elements of CT") and the main sub-theme were established as

"definition from teachers" for the main theme "teachers' conceptualization". At the same

time, during analyzing process meaning condensation, interpretation (Kvale, 2007) and

coping specific quotes of interviewee, which were presented in separate format,

approaches which were filled in the Excel document and later used to illustrate findings.

Findings

In this Findings section of the chapter, I present the two main major themes which

provide the findings for the following two main questions: What is the conceptualization of

critical thinking for Humanities teachers in one of the NIS schools with the IB

programme? and (2) What are pedagogical practices employed by Humanities teachers for

MYP and DP students to develop critical thinking skills in one of the NIS schools with the

IB programme?

Conceptualization of Critical Thinking by Humanities Teachers

In this section, I present teachers' understanding and definition of CT provided by

teachers, as well as, telling about the influence of their previous education and experience

as related to CT. The following is organized into five number of subsections. First, in sub-

section about importance, I present teachers attitude to the importance of CT. Then, about

familiarity with CT through the lens of teachers' own learning and teaching experience.

Then, related notions to CT which were revealed during the discussion about experience in

IB programme.

Importance of CT in different aspects of life. Overall, all participants evaluate

the importance of CT in different aspects. For example, Damir, reported CT as an

"important sort of skill and as a main component of his teaching subject". The other world

history teachers, Saya, Ermek, Linara and economic teachers, Kymbat, Bakyt also shared

the same opinion. Some participants pointed out the importance not only within the school

but even outside and after the school time. Farisa's answer illustrates such kind of

description:

> Critical thinking is a necessary thing. Especially nowadays. Because it helps you to
>
> develop as an identity. Imagine, that there is a child who will be always living with
>
> the idea of someone. So, the child will not be asking himself what I'm doing, why,
>
> so on. Possibly he or she will live a meaningless life and will not be interested in
>
> critical thinking which is the kind of spices that make our life interesting.
>
> Moreover, it helps you to think not only about local things but also about global
>
> things. And this is one of the necessary skills of the 21st century.

Farisa said that possessing CT skills is important in the 21st century to become as an

"identity". Moreover, in order to have meaningful and interesting life and to have broader

understanding of different things man should ask questions permanently yourself.

Ermek highlighted the importance of CT not only for subject and personal purpose

but its importance for the country. The following passage shows those ideas:

> The more developed critical thinking skills in our population or citizens we'll have
>
> less problems in society and state.

Cultivating CT skills in the population provides the sustainable development of the

country. Finally, all 12 participants showed positive reactions to CT and expressed the

importance of CT. This kind of attitude could be caused that approaches to learning have

already been embedded into the IB programme as a main focus. Moreover, the Department

of Humanities has separate assessment criteria and subject for CT.

Critical Thinking in Teachers' Experience. In this section participants shared the ideas about familiarity with CT before starting to work in the IB programme. When the teachers were asked about familiarity with CT, eight out of twelve teachers reported that critical thinking was a new concept in their experience before working in NIS with the IB programme. One of the participants, Madina, noted that her understanding has been changing through her experience. All of the participants had different educational backgrounds and experience. For example, some compared their familiarity with CT through the experiences with their own school and learning process while others with university time. Gulim, who had experience in public school, pointed out that in the IB NIS school, it is her "first teaching experience with focus on CT." Like Gulim, Saya learned about CT when moving to the IB NIS. Additionally, she added more subject-related description about novelty of critical thinking:

> I understand critical thinking...How to say? Mostly at the beginning, I thought. Not at the beginning, before this school. As I am a teacher of world history, I thought that knowing world history very well is like describing old events and knowing all the dates. But later I understand from this IB curriculum that without critical thinking you cannot know the objectivity of history.

Saya shared about how her pedagogical approaches were changed with advent of CT in her teaching experience.

Following two participants described how past pedagogical approaches limited the promotion of CT. Two participants who defined CT as new, provided a comparative description with their school (Linara) and university (Ermek) time. The role of teachers' perspectives of old teaching approaches could be clearly seen in Linar's answer:

> As a teacher when I started dealing with critical thinking skills, firstly it was new
> for me. Because I started in the post-Soviet Union school where we had only one
> perspective on different issues and no other opinions'

Another extensive comparative description of pedagogy was exemplified in the response of Ermek in the following passage:

> The role of the old school was just to deliver the knowledge, like to deliver it from
> one mind, how to say, or one thought to another. And I think that is not what
> critical thinking is about. Because critical thinking is about how we teach our
> students to become more independent learners, and when they have the skills in
> order to solve more from easier to more complex issues or goals, or any situations.
> When I did my major, Bachelor Degree at a state university in Kazakhstan, I was a
> completely different person, because I was taught to learn something by heart, and
> to know it. And that's what we usually considered as knowledge. You have factual
> knowledge, you are considered smart. But now, I think that the definition of smart
> has completely changed for me, because smart is when you ask questions that's
> what I've learnt personally from critical thinking.

From the preceding passage it can be seen how the concept of knowledge changed over time. Previously, as explained by Ermek, it was considered that being "smart" or "knowledgeable" was associated with rote-learning which contradicts the principles of CT.

The response of the following participant shows how understanding and interpretation about CT changed over time. Madina said that critical thinking was also a new concept in her experience and changed her understanding over teaching experience. She says that the understanding about critical thinking has been changed based on her experience and as time progresses. Her description of changing process started from

Bloom's taxonomy and turned to broader and conceptual understanding which was described in following way:

> First years when I was teaching for me the critical thinking was just using some kind of instrument which is guided. For example, to use Bloom's taxonomy. I thought that if I follow all of these strategies and stages I'm developing their critical thinking. If I do not follow them I do not develop students' CT skills. But nowadays I think critical thinking can be in every lesson. It depends on how you plan it. How you change it, how you lead the students to that. Even in DP we have lessons like TOK. That experience helped me with critical thinking. Because this lesson helps to judge any argument, judge any opinion. And through that I think I *changed my mind a little bit on what critical thinking is.*

Madina referred that lessons should not be limited within the one technique and teacher's planning is the essential to promotion of CT.

Bachelor graduates came to the NIS school immediately after university states about familiarity with CT in university time. Both Kymbat and Zhandos graduated from different universities and had two years teaching experience in this school. Both Kymbat and Zhandos reported that the concept of CT was not new, as they had commonly come across this concept in their university time. For example, Kymbat reported that knowledge about CT from university time is beneficial and applicable in her teaching experience:

> I learned CT before in university because we had a lot of topics on critical thinking and it was really useful for me at that time. And now I'm able to use it in my practice.

Received knowledge about CT from university time advantageously helps in teaching practice of Kymbat. Zhandos mentioned that the IB programme reminds him of his university programme and most of the things are familiar for him. However, although

the concept of CT is familiar, Zhanos reported that even though he knew and learned CT, teaching with it is different and challenging:

> Teaching itself is something new. Well, because to understand something like to know something and to know how to teach this. These two are absolutely different things. Moreover, to me critical thinking is not something that can't be one hundred percent taught by school, it is something *that every individual should develop him or herself. Critical thinking should be from the inside*.

Another participant states familiarity with CT but using in teaching experience started in NIS. Teacher Anar with one-year experience in mainstream school and three-year experience in the IB NIS reported that she was familiar with CT, but application and deepening of CT in teaching experience only started in the IB school. Overall, three participants reported about familiarity with CT from their university time and received knowledge and experience helpful for their teaching practices.

Overall four out of 12 participants declared about familiarity with CT. Previous three teachers were with short teaching experience and the fourth one was an experienced teacher with long-term teaching experience. Damir, who has extensive experience of teaching experience in public school and over five years in the IB NIS, illustrates a broad description about his knowledge relating to CT:

> It's not new for me even before IB when I worked in public school we had already started talking about it, and critical thinking was very important, even when **we didn't start to call it "critical thinking skills"** we actually used it in our lessons. Because it's the nature of my subject. We needed to analyze the events and to discuss, to see not just who was right or who was wrong but to see the variety of perspectives in order to see the whole picture and but at the same time to see the different elements of the picture.

Damir stated that knowledge and familiarity with CT were even before coming to NIS IB. Moreover, he asserts about the existence and application of CT under different terminology even before large-scale announcements and separate highlighting in educational documents about importance in the education system of Kazakhstan. It is noteworthy to mention that two of the teachers had experience in schooling in the Soviet Union. Previous teachers who had experience in Soviet Union schools describe it differently, and Damir strongly emphasized that the Soviet Union did have concepts of CT. He finished school during Soviet Union and university during post-Soviet Kazakhstan, reported about the existence of CT with different names before emergence of using the terminology CT and considered it as a core component of his teaching subject. To explain this difference and statements considering that the Soviet Union was not known for CT, it is possibly connected with teachers' attitude to Soviet education, epistemological beliefs to the teaching subject and changing educational trends.

In conclusion, it could be seen from the findings that there are participants who define CT as a new phenomenon and those who are familiar with it. It could be observed the three groups of division on familiarity with CT. The first group with Soviet and post-Soviet educational background who define CT as a new phenomenon. The second one, who had learning and teaching experience in Soviet and post-Soviet education system, states about existence and familiarity with CT. The third group, a new generation of teachers who state about familiarity in their university time. However, only one participant with great teaching experience stated that CT existed all the time but in a different name. Further participants shared ideas about notions related to CT within the IB programme. Discussion about notions as student-centered learning, criteria-based assessment, approaches to learning, academic honesty revealed comparison on teachers' previous background and teaching experience.

Teaching and Learning Approaches of IB Programmes Related to CT. The

following responses relate to the part of the interview where participants were asked to

reflect on their experience in the IB programme in general. This helps explain the

environment that is important for critical thinking. When I asked about the IB programme,

all twelve participants emphasized that it was a new educational style. Additionally, they

pointed out that this programme is new not only in their experience, but even for the whole

secondary school system of Kazakhstan. The response of Miara illustrates the

developmental history of IB in Kazakhstan:

> The IB system is a totally new education system for Kazakhstan in our country. But
>
> nowadays 7 years have passed and the whole school community is familiar with
>
> this program. Understanding of IB programs becomes wider. It spreads all over
>
> Kazakhstan.

> While Miara emphasized how the IB programme was new in particular for

education system of Kazakhstan, other participants highlighted several features of this

programme, such as   a student-centered style of learning (Ermek); strong focus on

approaches to learning (Ermek, Madina, Linara, Kymbat); criteria-based assessment varied

in different subjects (Linara, Farisa); integrated subjects (Farisa); some subjects are taught

only in English (Farisa); students have right of choice and autonomy (Anar, Ermek);

academic honesty (Zhandos). The participants saw these features as positive.

> From these examples, half of the participants mentioned two features related to CT:

approaches to learning (ATL) and criteria-based assessment. The strong focus on

approaches to learning were emphasized by several participants, and Madina's response

illustrates this idea with emphasis on critical thinking, reflection and time-management:

> IB focuses on developing skills. One of the skills which can be used is to be critical
>
> in any actions and to be reflective. It means learning from their mistakes and

learning from their progress. Also, I think one more important skill for students is time management.

The main focus of the IB system is developing skills especially CT and reflective skills.

Another important finding that some participants strongly highlighted the novelty of criteria-based assessment in their experience with a separate criterion of assessment in the Department of Humanities (Linara, Kymbat, Farisa) for CT. For example, Farisa broadly discussed that those features are not only new for teachers but also for students and for their parents. She reported that students are allowed to enroll from the seventh grade" in this school and they with their "parents define the IB programme as new and challenging." Farisa explained that in order to introduce these new notions the school has "induction weeks." She provided an example about how teachers hold meetings for parents and separate lessons for students in order to "explain what generally criteria-based assessment is" and "how to achieve any of these levels of the assessment." Generally, from the responses of the participants it could be observed that some notions of IB programme which were noted as a new also could be defined as related notions to CT. Thus, promotion and fostering of CT is infused into the programme.

In addition, interviewees provided positive approval about the programme in terms of mentioning its diversity and constant development as time progresses. For example, Ermek pointed out that the IB programme experiences regular additions, for example "every five years by introducing to the programme new guides, technologies, innovation and new assessment techniques" although the "core mission of IB is always being kept." He emphasized the similarity between his views and the IB programme, saying that "I think I can share these ideas with myself with my own teaching experience". That is what

attracts the interviewee most in his IB experience. Overall, this example from Ermek indicates his attitude towards CT and its related notions.

The same ideas were shared by Saya about advantageous aspects of the IB programme which focus on fostering CT skills, the importance of CT not only in school but for personal life. About strong support from the programme is described in the following passage from the interview with Saya:

> I'm happy that I'm a teacher at this [NIS IB] school. I understood that teaching strategies before the IB programme mostly were based on descriptive ways. We had some kind of limitations for critical thinking. That's why I think that our students are happy students because they use the well-established programme. I suggest using this kind of programme or some elements of this programme in other schools also it will be better to foster critical thinking skills. Because critical thinking skills are more important than facts. Because focusing only on facts forces the students to memorize, we must teach them how to implement knowledge in their own life. In our lessons we try to connect with their own real-life situations. We try to use global context. All our lessons are based on one global context.

Overall, according to Saya the teaching strategies should be adopted or spread to other secondary schools of Kazakhstan to provide high quality of education and to develop CT skills of students. Moreover, her description somehow shows that the phenomenon of CT and its required pedagogical approaches are new for Kazakhstani teachers.

A couple of participants noted that they had learned some features of CT from their university experience. For example, Zhandos mentioned that the most exciting part in the IB programme is "academic honesty which is strictly followed", which also reminded him of the high standards learned at his university. In addition, Ermek and Zhandos shared the same ideas with Saya about spreading their pedagogical experiences and added that the IB

programme would be a great addition to the educational system of the country in general.

"The first steps that Nazarbayev Intellectual school tries to implement is a good beginning

and it could be further improvement for the whole education system" (Zhandos): this broad

description for the promotion of the programme in public schools of Kazakhstan.

Commonly, the educational implementations experienced in Nazarbayev

Intellectual Schools with IB programme were emphasized in a positive way by participants

and its spreading would be beneficial for students in public schools. Some of the

participants characterized the IB programme as not only being new but also challenging.

Three out of twelve participants --Saya, Gulim, Bakyt--who have experience in public

school, mentioned the absence of similarities in pedagogical practices. As a challenging

experience was described in the response of Saya in the following way:

> When I started to work in this (IB) school in the first year, of course, it was difficult
>
> for me. Because I started to learn different programs, documents from IB. Maybe
>
> not difficult. It was challenging for me that the teacher in order to cover all
>
> requirements of IB every time, you should investigate something, to identify some
>
> new approaches to teaching.

Saya told about challengeable moments of the IB programme. Further Bakyt

provided vivid comparison and focused on differences between public school and the IB

programme by referring to pedagogical practices:

> So IB is a very careful programme for me because I have learnt how to teach
>
> students effectively compared to other public schools. Because as I think in other
>
> schools even maybe in other NIS schools they just listen to a teacher and there is
>
> nothing else. More focus on memorization.

Teachers who do not have teaching experience compared with their own learning

experience in the secondary school. Linara and Kymbat reported that this school is their

first job immediately after the university. For example, Linara provided comparative

description with her own school:

> Maybe I can compare with my school, how I studied. We have here the vision, the
>
> special missions of the school, there are other concepts. For example, when I was
>
> studying *the teacher was just judging us on her own thoughts in her head without*
>
> *saying what she's expecting from us*. Just giving the tasks and just assessing them.
>
> Because I started in the post-Soviet Union school where we had only one
>
> perspective on different issues and no other opinions.

Kymbat similarly compared with own secondary school and noted new learning

elements for the IB programme, the description from Kymbat:

> This is my first experience and therefore it was fully new to me. And I studied in
>
> regular school and therefore IB school was new to me because I know what
>
> approaches to learning (skills) are now better. I'm able to learn more about
>
> international maintenance.

Approaches to learning and international maintenance from the IB programme were

defined as new aspects.

In conclusion, most participants, regardless of their experience and background,

highlighted the novelty of the IB programme especially on pedagogical practices. Notions

such as student-centered learning, academic honesty, approaches to learning, criteria-based

assessment and students autonomy related to CT were identified as a novelty in

participants learning and teaching experiences. Thus, majority of the participants defined

CT as a novelty and provided with detailed description on their opinion.

Teachers' Conceptualization - Providing Their Own Definition. Generally,

participants had a similar conceptualization of CT and some of them provided a short

explanation and description and other conceptualized in a broader and more detailed

version. While they explained their understanding of CT, teachers had various

associations, such as: providing different perspectives, creating argument, making source

analysis, questioning, finding relation among ideas, doubting and criticizing in a positive

way, thinking rationally, making inference and engaging in reflection. Moreover, some

participants directly connected their description with their existing criteria of assessment of

CT, which is unique for the Humanities Department.

   Madina, Bakyt, Anar and Gulim provided general descriptions about CT with

emphasis on one element For example, Madina conceptualized CT as a "sort of skills",

which helps "to interpret issues from different perspectives" and "to discuss or identify the

idea from different angles." While Bakyt focused on another aspects, he thinks that CT is

"a broad concept which changes the meaning of knowledge." Also, Anar saw a similar

understanding, regarding CT as an ability which tends to induce constant "versatile

developing, arguing in a positive way and expressing his or her own opinion." Previous

participants focused on individual and limited elements, while Gulim provided a

connection across multiple elements which were mentioned by others, including "rational

thinking" which helps "to see the connection among ideas," and "to create a clear picture"

and "to find appropriate solutions." Even though, during discussion about their definition

of CT, participants provided broad definition according to their own understanding. Then

later during the discussion about pedagogical practices they provided more insight.

   The next participants, Linara and Kymbat, started the conceptualization of CT that

in their Department they have a separate assessment criterion for CT. For example, Linara

reported that CT is a skill and ability "to create arguments, to provide different

perspectives, and to make source analysis". Kymbat had the same conceptualization about

CT and supplemented with another ability as "an evaluation of different issues, situations,

and data." In Linara and Kymbat's description of CT, I could see the similarities with

strands provided in the IB programme for Middle Year Programme (MYP). Another

subject-related conceptualization with the same elements, which were mentioned by Linara

and Kymbat, was given also by Damir such as providing different perspectives, analyzing

and evaluating skills. Damir pointed out other skills such as an ability to find "the relation

of different things," "to see the world holistically" and "to make reflection of the work

done in order to define strengths and limitations for further development".

Another two teachers, who teach Theory of Knowledge (TOK) also provided

subject-related conceptualization of CT, but with more emphasis on effective questioning

and applying knowledge in real life. First of all, Maira strongly highlighted that "TOK is a

heart of CT" and conceptualized CT simply as "thinking about thinking." After asking her

to provide more details about "thinking about thinking", she further supported the idea

with more detailed description, which is illustrated in the following passage:

> The main skill that we develop in TOK is critical thinking skills. In general, critical
>
> thinking is not just developing students' critical thinking skills. But also, critical
>
> thinking is more thinking about thinking. It could be promoted with the questions
>
> that will make our students think. Questions which start from how, why. In terms of
>
> TOK I would say while working with real life examples connected with all the
>
> areas of knowledge, students reflect on their knowledge on the specific subject, and
>
> they build knowledge questions. TOK is all about questioning. It's not just asking
>
> factual or debatable questions. This is about building knowledge questions. What
>
> do I mean by knowledge questions? Knowledge questions are the questions that
>
> imply questions about knowledge. For example, what is knowledge? It is a factual
>
> question. But we should ask these kinds of questions. How do you know that? How
>
> do you know what you know? That will make people think.

From this passage it is clearly seen that Maira conceptualizes through the lens of the TOK. She defines CT as an ability which promotes effective use of knowledge and deepening of knowledge. Overall, it is suggested by Maira that the way to achieve such effective use and deepening of knowledge comes from creating high level questions, connecting with real life, and reflecting on received knowledge.

The same ideas about focusing on questioning and connection with real-life of CT was observed in the answers of the Farisa. Farisa's explanation started with a metaphorical description, and the following passage illustrates these ideas:

As one of the interesting ways to explain what critical thinking is. That happened in one of the lessons which I did not teach. I was just a person who was walking next the door but I heard that discussion among another teacher and students. A student was asking: "Teacher, could you tell me what is critical thinking, please?" And the teacher was standing and thinking and then explained. For example, sheep go there which you would like to go. Where you tell them, they will go. And they will never think where to go, why to go. And this is not critical thinking. And critical thinking is when you are thinking where you are going, and when you know where you are going, and for what you are going. And this kind of thing if you are studying you are thinking outside of the things that you have. Why do I need it? For what this is necessary? How I'm going to apply this? Why do I need to apply this?

Briefly, the main idea was about to avoid acting like "a sheep" who does not have their own opinion and does not control their mind and actions. Farisa referred to questioning before doing something, to think outside-of-the-box, and about applicability of information for students' life. At the beginning she starts with the metaphorical side to explain CT, then further explaining connected to CT skills, making inferences and applying them in real life. Farisa expressed these ideas in the following way:

Critical thinking is questioning yourself and asking why, how, for what questions.

Moreover, this is also an ability of implementing and applying knowledge in your

real life. Comparing the theory and the practice after that making inferences and

creating your ideas from the received knowledge. Another thing is to think how this

(knowledge) might be implemented in your own life. How you can implement these

things like theories or other things and other stuff in your own life.

Generally, Maira and Farisa emphasized the importance of effective questioning

and applying gained knowledge in real life experience. Through questioning and

connecting with real life situations knowledge takes on new meaning of the learning

process and provides opportunity to deepen received knowledge.

The next two participants, Zhandos and Saya, provided conceptualization of CT

which was more related to one of the affective (disposition) factors (skills). Zhandos

connected CT with personality and defined it as an *inherent characteristic*. His response

shows that "every individual should develop CT by himself" emphasizing that "CT could

not be taught one hundred percent by school". Participants did not directly mention

dispositions, but Zhandos' response indirectly connects to truth-seeking, which may be

illustrated in the following passage:

To me personally critical thinking is about asking questions, it is about **doubting**

every information, every piece of information that you get. By doubting I don't

mean that you need to be pessimistic about everything, I mean that if you hear

something or if you see something, you should not fall for it immediately, you

should stop, then breathe, and ask yourself: "Is it true or not? Probably, there are

some other perspectives about this particular topic or not". [Emphasis added]

While Zhandos uses the term "doubting" which can be considered as a form of "truth

telling," Saya used the terminology "criticizing." Another example of truth-seeking was

highly and repeatedly emphasized by stating about "criticize all" and "objectivity" the

explanation is more subject related. Saya, teacher of world-history, reported in the

following way:

> Critical thinking is thinking from different perspectives. Thinking from different
>
> positions, angles and in a variety of ways. Without critical thinking you cannot
>
> know the **objectivity** of the history. In order to identify the objectivity of history
>
> you have to **criticize all** the sources and opinions of historians. Then you come to
>
> your own opinion and make inference. Additionally, you have to explore and
>
> evaluate several sources. [Emphasis added]

Generally, participants' conceptualization of CT mostly focused on exploring the

right answer and reliable information and making their own conclusion by doubting

(Zhandos) and "criticizing" (Saya). It should be noted that in Russian the typical term for

"criticize" – *kritikovat'* -- tends to have a neutral connotation and is commonly accepted as

a word in English "critique". However, their conceptualization does not differ from

previous participants and report about questioning, providing various perspectives, making

inferences and evaluating sources.

Ermek provided the broad and detailed conceptualization of CT was provided by

who defines CT as the "combination of skills". Maybe because of participants' teaching

background, they emphasized different skills as most important for CT, or only focused on

one of the skills. However, Ermek spent more time describing the CT. His

conceptualization of CT was broader, including almost all of the skills noted by other

participants. The following passage demonstrates the detailed conceptualization of CT by

Ermek:

> For me, critical thinking is the **combination of skills**. First of all, **rationalism** is
>
> one of the important values in how we acquire knowledge. Thinking rationally for

me is equal to critical thinking. Because starting from the ancient philosophers, **questioning,** logic and rationalism were the ways how we could separate **science from non-science, truth from non-truth.** Additionally, for me it is also the ability of students to think not only rationally but also **independently**. Because critical thinking is about how we teach our students to become more independent learners, and when they have the skills in order to **solve** more from easier to more complex issues or goals, or any situations. Another skill is **synthesizing**, at a higher level than just analysis, and when you try to **gather all the arguments** and create your **own interpretation**, you can give your own **evaluation** to the events. That's also for me the part of critical thinking. In the research process it is important for students to **reflect** as well. I think that's also the part of critical thinking. [Emphasis added]

Ermek listed skills and dispositions which are connected with CT, such as rational thinking, questioning, truth-seeking (e.g., "non-science, truth from non-truth"), independent thinking, problem-solving, synthesizing, interpreting, analyzing, providing arguments, evaluating, and reflecting. Some of the terminology he used aligned with curriculum, commonly accepted CT terms, while at other times he used phrases that suggest their inclusion for CT. For example, it appears that the use of "science, non-science, truth, non-truth" can be considered as "truth seeking" disposition.

In conclusion, the majority of participants conceptualized CT as a "combination of skills" such as providing different perspectives, analyzing, evaluating, questioning, making inference, reflecting and applying knowledge in real life. Moreover, during conceptualization of CT participants explained and described it as a skill(s). While only one participant directly mentioned dispositions, others alluded to the idea that CT dispositions are a consequential process of developing CT skills. Instead of critical thinkers

having certain dispositions, participants in this thesis study noted that by developing CT skills, students develop their dispositions, such as open-mindedness. Probably, their conceptualization is interrelated with the programme standards, subject objectives and teacher background.

Pedagogical Practices of Humanities Teacher for Developing Critical Thinking

To understand how teachers, develop CT in students, they were asked two main questions about the important principles and adopted activities based on their own experience and observations. For this second section, I used my analysis of the curriculum as well as probing questions to try to deeply understand the learning environment, teacher knowledge, difficulties and teaching strategies. Broadly, all participants provided various principles, some focused on strategies, others on atmosphere in school or class, interaction process, importance of reflection and writing, role model, teacher knowledge, equipment and difficulties. Also, according to participants, activities are developed by teachers collaboratively as well as mostly directly connected with final assessment. Therefore, because of collaboratives and program standards teachers appeared to applied the same teaching instruments.

This section is divided into two numbers, starting with principles for CT and then about activities and exercises for developing CT.

Principles for developing student CT: Subject and Learning Environment. When teachers were asked about principles for developing CT they connected their answers with subject or pedagogical instruments, learning environment, teacher knowledge and role model, as well as difficulties. All participants reported that the teaching of CT happens *within* the subject, which is indirect teaching. Teachers who teach Theory of Knowledge (TOK) said that it is a separate subject in the IB programme with main focus on CT. Previously, during providing conceptualization of CT, Maira emphasized that "the

main skill which is developed in TOK is critical thinking skills." Zhandos's response also

illustrates the indirect teaching strategies:

> We don't teach critical thinking on purpose, like we don't have certain lessons about
>
> critical thinking but critical thinking is embedded in our lessons so it's like an
>
> invisible thread that goes through every lesson, because we learn a lot of theories,
>
> and every theory has its own perspective, strengths and disadvantages. When you
>
> learn or approach the topic through the lens of different theories consequently you
>
> may widen your world view and understanding of the world.

This passage shows that CT is infused into the subject and learning through the lens

of different theories develop CT. Another example is connection not only with subject

content but also with criteria of assessment. Additionally, she said that groups of

humanities subjects require pedagogical approaches of CT to avoid fact-based learning.

Farisa reported following ideas:

> In our subject it is easier to understand and implement CT because it includes
>
> *critical thinking in criteria assessment*. Moreover, it is a department of *humanities*
>
> and anyway develops critical thinking in order to understand some facts. You
>
> cannot just say; the second world war had started in 1941 and finished in 1945. You
>
> need to understand why it started, who were the main people, who started this war,
>
> who made these people to act in that kind of way. The facts are not given very
>
> straight. You will ask students: what do you think happened next? Why has it
>
> started? What pushed people to start this? Asking questions, using different
>
> techniques, strategies develop thinking skills not only CT but also *creative skills*.

Farisa emphasized that the assessment system is already required for the infusion of

CT into the curriculum and classroom practices. Humanities subjects require using

different teaching and learning strategies to develop not only thinking skills but also

creative skills.

However, during the discussion about activities and techniques, the majority of

participants reported that they explain or teach students how to make activities. Depending

on the grades, teachers act in different ways sometimes they explicitly explain how to write

argumentative essay (Saya, Linara, Maira), how to develop different types of questions

(Gulim, Ermek, Maira) as well as how to answer the questions (Maira, Anar). Here I will

provide three responses on it but later it will be discussed in detail in the section about

techniques (strategies, activities). Gulim's and Zhando's responses show that the grade

makes a difference on direct or indirect explanation or teaching of techniques. Gulim

informed that for the newcomers (7 grades) they explicitly teach, for example, "how to

create research questions." Zhandos's answer shows that the students in higher school (11-

12 grades) automatically use and apply the strategies or techniques of questioning and

teacher does not explain. This idea was illustrated in the following passage:

> Students create their own questions, they are really good at making up questions.
>
> We don't teach them how to build these questions, because again they came to the
>
> Diploma Programme (11-12 grades) from the Middle Year Programme (from 7 to
>
> 10 grades), so they've already been taught how to do that.
>
> While another example, from a TOK teacher, who also teaches 11 and 12 grades,

stated that they even CT is infused into the subject curriculum they separately explain and

teach to create questions, to read critically, to make effective note-taking and to write

argumentative essays. Moreover, she reported making training courses for teachers and

guiding new teachers who come to teach TOK. She said that TOK is generally a new

subject not only for students but also for teachers and parents. From the following passage

we could see Maira's detailed description of TOK and difficulties in its teaching and

learning process:

> There are lots of difficulties. Especially in the first year of DP in the eleventh grade.
>
> Students come to my class without knowing about TOK. In the first three months
>
> we give them a kind of introduction to TOK. We try to explain everything in detail
>
> and start practicing. Even after six months students cannot clearly even answer such
>
> questions: What is TOK? What did you learn? What is the course about? It's now
>
> enough time to understand TOK. So, the understanding comes even in the second
>
> year after the full completion of the first year. Generally, we start to teach them
>
> how to read in order to make notes effectively. Then, we teach them how to build
>
> knowledge questions. In DP, we have six areas of knowledge. They are
>
> mathematics, the natural sciences, the human sciences, the arts, history, ethics. One
>
> of the knowledge questions could be: what is the role of emotion of producing
>
> ethical knowledge? Or to what extent? This process is the hardest one. Students are
>
> not familiar with knowledge questions. They have a doubt whether it's a knowledge
>
> question or not. We give them a list of questions mixed together with knowledge
>
> questions and other types of questions. Sometimes even *local teachers have*
>
> *difficulties in building knowledge questions*. Relatively to the teachers, every time
>
> the number of teachers who teach TOK is growing. First, I organize training
>
> sessions for them. For example, at the beginning I gave the induction session on
>
> what TOK is and about its nature. Further I continue to provide constant supporting
>
> and sharing on the teaching methods.

Maira provided short description on the TOK teaching and learning features

because its novelty in Kazakhstani education context. Moreover, this subject is

challengeable not only for students but even for new comer teachers.

Another interesting finding is that teachers apply TOK knowledge in other subjects during their teaching of questioning strategy. For example, Farisa, who teaches social studies in seventh and eighth grades, reported that she uses TOK theory for developing effective questions which is an effective way to develop CT of students. The response illustrates that students should develop questions by themselves and the following passage shows the ideas:

> In my teaching subject, social studies, for the questioning we use TOK theory. We use it in order to create questions and to ask students. Sometimes we give TOK theory and different kinds of levels and verbs which students can use in order to create their own questions. We do not provide students with ready-made questions and do not show that these are the questions of critical thinking. If it is ready-made it says this is not the development of critical thinking. Because first of all, when you are asking, you are creating questions on critical thinking you are developing your critical thinking.

According to Farisa, questioning technique is taught to students through different ways by creating questions they develop CT.

In conclusion, from these responses it is observed that CT is already infused into the curriculum and there are separate assessment criteria. Only TOK in the IB programme has specific focus on CT but it does not teach separately CT. It develops through the content of other subjects. However, depending on the grades, subskills of critical thinking such as reading with note-taking, questioning, writing argumentative essays require explicit explanation. Therefore, the essential strategy for encouraging and developing CT is indirect teaching in the Department of Humanities.

Principles for Developing Student CT: Learning Environment. The next substantive principle is the atmosphere of the learning environment to promote CT which

includes several aspects such as interaction, relationship, resources. Moreover, some participants provided challenges during the application of some aspects. First of all, the majority of teachers reported the importance of creating a place where students could freely share their own ideas. Along with it was highlighted the significance of the dispositions such as open-mindness, self-confidence, tolerance. For example, Bakyt and Kymbat shared the same idea about "making interactive environments" where there is communication not only between teacher and student but also among students. Moreover, they talked about "the presence of discussion not only teaching" for developing communication and CT skills. Madina emphasized to create environment where students could share their ideas which was given in the following excerpt from the interview:

> For me the environment is human resources which are necessary in order to see the different views of individuals and equipment in the classroom. Relatively to the human resources, first of all, the teacher and students *have to be open-minded.* Second, they have to share any ideas which they think are right. The third one, they should question a lot themselves or others. Because if people who surround you will be conservative you will be closed for some kind of new ideas. Probably it will influence you not to generate new ideas.

Madina defined the learning environment through the two aspects as human and physical ones. Saya provided the same idea as Madina about open-mindfulness but with a more concrete example and connected with activities. The following excerpt from the interview with Saya shows how through the activities could be created learning environment to encourage CT dispositions:

> Debate is one of the techniques to express different perspectives. It also calls on students to be respectful to other cultures, religions and opinions. Thus, we develop how to get objective knowledge.

Both Madina and Saya referred to the creating environment where students can share ideas. However, there are some uncertainties about possessing of dispositions Madina said "have to be open-mand" while Saya constated as "call on to be (learn to be)".

Whereas Gulim described an ideal learning environment for developing CT as a place where students work "collaboratively". As well as they learn "to communicate and to listen other's ideas and opinions" (Gulim). While Ermek reported as the "safe environment" where students could "think independently". By "independent thinking" he referred to the abilities such as "problem-solving and providing his own interpretation, not just review of different arguments and delivery of knowledge". Overall the learning environment for developing CT was described in different ways however the majority of participants shared the same ideas with focus on providing the environment where everybody could express ideas and opinions and ask questions.

The other essential factor for creating an effective learning environment for developing CT is the relationship between teacher and students. Participants highlighted several factors such as to avoid cult of expert, to lead students gently as mentoring, to provide effective comments and non-verbal support. Maira reported about teacher attitude to the students and position between students and teachers which is illustrated in the following excerpt from the interview:

Relationships between teacher and students are a highly important factor for learning. Because most of the teachers in Kazakhstan used to have some kind of *authoritarian system*. They take the position as "I am correct and you should respect my perspectives." We need to change that attitude. Because we have so many smart students especially in my teaching classes. It's meritorious to observe how students can think, reflect, and provide effective answers and arguments. Sometimes they are much better than us, teachers. I'm always motivating them. I'm

not just listening and moving on but also commenting and listening attentively.

Students are happy to have a kind of equal relationship with me. Saying: yes, I

could be wrong. But that is what I think. And what you think is also correct. My

students love being in my class.

Maira's ideas about authoritarian teaching culture and respectful attitude to the

students could be also observed in the response of Ermek but in more detail and through

his own experiences as a Master degree student in Europe and then as a teacher in the

secondary education system of Kazakhstan. From the following passage it could be seen

the further influence of the learning culture of foreign background on his teaching

approaches:

My learning experience in the Europe helped me to bring more new innovations to

my teaching. I understood that previously I tried to control the things, to keep tight,

and to keep the teacher-centered teaching style. Students sometimes, not

sometimes, but usually they get excited when they hear me. That's what my foreign

degree helped me with pedagogy. I became a more student-centered teacher. I

thought previously that it would be hard, it will be chaotic, disorder, but still no.

Further Ermek provided a description of what exactly changed in his teaching

experience. How he turned from teacher-centered learning to student-centered learning,

providing independence for students and "the level of trust," importance of feedback and

reaction during providing feedback by taking into consideration students' school age. The

excerpt from the interview illustrates the following ideas:

When you do more opportunities for students to get in charge, they start to

express themselves better. That's what I've **learnt from my foreign university**,

and many other things. Also, when I was there, it was my Master Degree, so we

were quite **independent.** That was also partially one of the new things that

happened to me, because, previously I thought that a teacher should supervise, lead

students, but I saw that eighty percent of the time we were just on our own to study

or in the library. Moreover, the **level of feedback** that the teachers, the professors,

gave us there, that's also very important. Because I don't know, maybe it is me, but

usually I've been sometimes too harsh on the essay work. Now I understand that

being positive is more important. Even though the student can be like a total

failure, his work might be of low quality, you will not directly express that to him.

Especially in the written form, because it's just the way to discourage students,

that's it. I think for **emotional intelligence**. That's also important to always give

students an opportunity to improve. Especially when you work in a school, not

university, when they are grown-ups, they are sensitive. They are just kids. Another

significant thing it's **the level of trust to your students.** There is always one

student who is less motivated than others, and the others will tend to look up to

him, not to you, because they appear of the same age. **When one student will show**

the high level of involvement the others will join as well. [emphasis added]

Mostly the focus of Ermek's describtion about principles for encouraging CT was

about how the role of teacher transferred from "authoritarian controller" to "the mentor or

facilitator" of the learning process where the elements such as feedback, trust, student's

autonomy and interdependence are inherent part of learning environment for development

CT. Damir also emphasized that a teacher-centered learning environment is not appropriate

for developing CT and "contradicts being open-minded and having the right own

voice." Zhandos also shared the idea about independence for students and the role of

teacher as a "mentor." He demonstrated ideas in the following passage:

Students can learn themselves. They can sign up for different courses. They can

study independently, they don't need people or figures. I mean teachers to tell them

what they should do and how they should do this; but what they really need, they need mentors. I think that right now teachers should serve more like mentors, like guiding figures for students.

Zhandos states about providing opportunities for students to learn independently because of access to free online courses and teachers act as a guide. Overall, relationships among teachers and students, also a significant aspect for developing CT. Avoiding the "cult of expert" and accepting the role of mentor, providing effective feedback and giving autonomy for students were mentioned as key elements for appropriate relations.

Principles for Developing Student CT: Student Autonomy. For students' autonomy, participants provided another example as "student's voice". For example, students' active participation in school life and opportunity to choose the way of assessment. Anara said that "their school is unlike other ones", it is open for "consultation with students" and "participation of students in decision-making situations within the school by providing constructive arguments". Saya explained that in school they have long-term projects and final assessments which are set up by teachers. For the short-term assessments, students have the right to make choices on which form they would like to deliver (Saya and Gulim). However, Zhandos shared challenges that he faced when students share ideas during the discussion of forbidden topics in our society and how he copes with those challenges and the importance of his teaching approach. The following passage shows interesting findings which in the future require separate attention and further research:

Sometimes students may face some **sort of difficulties** when they try to explain their opinion and to prove their arguments. It is true. It is sad, but again we try to do our best to get over this issue. It comes to other mentioned **issues like parents, or school facilities, or political issues**, anthropology is not a standard subject not only

for this city, but also for Kazakhstan. Many topics are really **controversial** in my teaching subject. For example, we can freely discuss about homosexuals, homosexual marriages, prostitution, some outcasts, maybe incest taboos, **many topics that are not well perceived by our society**. I wouldn't say that it bothers me a lot, because I do understand that these subjects help my students not to become better people but to become people who are **open-minded.** Even if sometimes our **administration does not like** these methods or these topics. I don't care. [emphasis added]

Zhandos found that discussing controversial topics is important to make students open-minded which is one of the essential dispositions for developing CT. Damir also talked about controversy of some topics, for example, he reported that in TOK, teachers collaboratively decided to skip the topic about religions because they define it as "a sensitive and hard topic." Another interesting finding about limitations of bureaucracy which is illustrated in the following excerpt from the interview with Zhandos:

I would really like our students to have free access like in and out of school, because as you said our subject is based on discussions, observations, interviews. They are very crucial for anthropology. Sometimes we do need to go outside, sometimes we do need to go to the shopping mall, for example, or just to the street to ask questions, to observe, and to participate in the everyday life of people. We cannot do that because we need special permission from the administration, from the parents, and it is like a lot of bureaucracy going on, and it hinders the development of this subject.

Even the previous participants reported that the school actively promotes developing CT, there are cases of limitations on controversial topics and bureaucracy which contradicts the learning environment of CT. However, school encouragement of CT

happens not only by providing the right for students but also through the separate

curriculum activities. For example, Kymbat reported that there are debate courses in their

school. She defined it as "really useful to promote CT" as well as students "learn to collect

reliable data." In conclusion, school encouragement of CT is fundamental to provide multi-

faceted support.

Teacher Background and CT. For creating appropriate teaching and learning

strategies, environment and relationships to develop students' CT teacher knowledge and

development is crucial. One of the participants provided explanations through her teaching

subject. Farisa talked about the importance of teachers' knowledge of "understanding the

content of teaching subjects" and "thinking skills" to avoid fact-giving teaching methods.

Additionally, she pointed out that "critical and creative thinking skills help to develop

deeper understanding of the content of the teaching subject." Damir also shared the same

ideas that teachers should have CT skills otherwise it is challenging to teach it. His ideas

were presented in the following passage:

> First of all, the figure of teacher and the position of teacher *should possess* this sort
>
> of skills because it's hard to teach and it's hard to develop critical thinking if you are
>
> not and if you have no idea what it means and what it is for .

Participants suggested that teachers should master CT skills in order to effectively

teach and develop CT skills of students.

During the interview participants who were familiar with CT--Anar, Kymbat,

Zhandos-- mostly referred to their knowledge and experience in university as students and

said that they apply those knowledges taken from their university courses and professors.

However, participants who define CT as a new concept or phenomenon in their experience,

were asked how they developed their own CT skills. Majority of participants (Linara,

Ermek, Madina, Bakyt, Saya, Linara, Gulim, Farisa) said that NIS school itself provides

encouragement for staff to learn and to enhance CT skills. It happened through the in-service training courses, online courses, and collaborative school working by providing internal school courses, team teaching, mentoring, observation.

Principles for Developing Student CT: Training. Practicality of one of the in-service training courses were mentioned by Linara and Farisa. Farisa explained that those courses were called "level courses" and organized "by the government to train in-service teachers." According to Farisa's description there were three levels where the first one was for principals, the second one was for teachers who train colleagues through coaching and mentoring, the third one was for teachers in order to organize classroom practices. The main purpose of those courses was training on new teaching and learning approaches in pedagogy, teaching to CT, assessment for and of learning, using information and communications technology (ICT), working with gifted students, differentiation and educational leadership (Farisa). Both Linara and Farisa participated in the third level and mentioned several advantages of that course such as how to develop teaching and learning strategies and activities, to teach students the different skills and to use various materials. However, experienced teacher Damir found out that the local courses were of low quality which is observed in his answers in the interview:

> ...actually, most courses of the **IB programme are quite useful [in English]
> [emphasis added]**. If you want to talk about Kazakhstani courses, I wrote a small
> research paper and participated in the conference. After exploration I could not
> provide a set of qualified local training programs for teacher professional
> development on developing critical thinking skills. I couldn't find any courses.

Damir said that foreign training courses are more effective than local ones. Ermek also pointed out that resources in English language are more informative especially for CT. The following excerpt illustrates the ideas:

I think, first of all, I like the fact that we tend to teach the students in English in the

school system of Kazakhstan, many subjects, even in ordinary schools. Now there

is an emphasis to teach in English. And I think learning English and learning

subjects through English, you can create advantageous opportunities for students,

because I think there are **more sources in English for critical thinking than in**

Russian [emphasis added], because as I said most of them are always

translations.

Overall, the local course "level courses" provided general information for new

teaching and learning approaches and were defined as practical only for new entrants into

the teaching profession and young teachers" (Linara). Additionally, several participants

talked about the effectiveness of foreign training courses. For the courses' positive effect

on teaching practices are discussed further.

Several participants highly highlighted courses provided by the IB programme.

Farisa, Madina, Ermek, Zhandos and Damir said that there were no separate courses on CT

but it is already infused into the courses. For example, Madina shared her experience in

participating in programme related courses where she studied about "conceptual learning

and inquiry questions" and found it highly useful. According to her description, "IB

concepts and inquiring questions are also critical thinking." Farisa and Ermek noted

advantages as "having facilitators" during online courses who guide and help to apply

received knowledge in classroom practice and provide feedback for further reflection and

development. Zhandos and Damir think that courses should be more "subject related"

which is closely connected with subject content and provides strategies specifically for

their teaching subject. Moreover, Damir told about the importance of developing local

online courses for teachers and relied on that "pandemic situation with COVID-19" will

change the vision of educational stakeholders and push "to understand the significance of

distance learning and online programmes."

Depending on teaching experience and abilities participants emphasized different

approaches of school support which happens through the collaborative working

environment. It happens by providing planning times, internal school training courses with

experienced teachers, observation, mentoring, visiting lessons. Madina said that she

developed her own CT skills "within the community together in collaboration with other

teachers." Similarly, Saya said that she developed her CT due to collaborative working

with experienced teachers from her department and department of art, and with foreign

team teachers. Another two participants, Linara and Gulim, emphasized the mentoring as

the most helpful for developing their own CT. Linara based on her experience pointed out

mentoring, visiting lessons and planning times were highly helpful for developing her own

CT skills. Gulim also mentioned mentoring as beneficial because a mentor has a special

"meeting time once a week", provides "valuable feedback" and "checks the progress by

observing her lessons", and "sometimes helps to plan lessons." Thus, based on the

responses of participants it could be seen that collaborative working is also one of the

effective ways to develop teachers' CT.

For the physical learning environment several participants said that the school has

appropriate learning spaces. Kymbat, Bakyt and Gulim reported the importance of ICT and

making the working process more comfortable. They mentioned using "white interactive

board for showing video and presentations", "different types of subject-related cards for

playing games", and "moving tables for easy interaction." Moreover, Maira and Madina

strongly highlighted good collections of books. Maira reported that "the library is full of

TOK books and there is a special TOK corner for students and teachers." Madina based on

her small research in school also said "the importance of a wide range of resources not

only theoretical ones but also research sources." The importance of different and large amounts of sources which are not only books but also "database, online libraries" were mentioned by Saya, Linara, Damir and Ermek in order "to provide different perspectives and to learn on source evaluation." Overall, the importance of ICT, appropriate furnishing and different types of sources were noted for appropriate physical learning environments.

However, two out of the twelve participants provided distinctive responses on the physical environment of the classroom. For example, Damir said that being equipped with laptops and libraries full of resources, books, and access to databases is advantageous because it makes the working process easier and helps to provide different perspectives for students. However, teacher knowledge was highlighted as more significant and CT development could be without special equipment. The following excerpt shows his opinion "it's not so difficult to develop critical thinking without specific supplies as laptops and books, everything depends on teacher knowledge and experience." Zhandos also states that there is no need for special equipment for lessons but his description mostly connected with table arrangement of most Kazakhstani schools, creating a comfortable atmosphere and access to the internet. The following passage illustrates the description of environment which could be appropriate for his teaching subject:

> … there is one thing that I don't like about not only this school in particular, but about *most of the schools in Kazakhstan*, is that classrooms are all the same. They have the same desk alignment and sometimes different subjects don't need this type of alignment. For example, for anthropology we don't need a lot of desks or chairs. For anthropology the perfect class would be a classroom with a few tables, with a lot of cushions and maybe with a small tea or coffee table. I wouldn't say that we don't need a lot of books, however it's the end of 2019, we can get all the information that we need from the internet so it is quite good.

From the response of Zhandos it could be observed providing students with the atmosphere where students can learn independently and the importance of access to the internet.

In conclusion, according to participants, teaching of CT happens within the subject and is directly connected with assessment, learning environment and teacher knowledge which is the fundamental principle for promotion CT. They provided general principles which are considered as important ones for developing CT based on their own experience. They highlighted such things as the emotional and psychological atmosphere of the school and classroom, teacher knowledge, support of school administration, physical environment.

Activities and Exercises Suggested by Teachers

This section focuses on activities and exercises which are adopted and used by the teachers of humanities for developing CT. This section was divided into subsections such as questioning, oral, specific, writing activities and assessment as techniques.

The main things that were found in this study is that teachers work collaboratively, use activities which intellectually challenge the students. Teachers develop or adapt activities by themselves and collectively decide its appropriateness, have meeting times for horizontal and vertical planning. For example, Linara reported that "activities mostly develop by teachers" and collectively decide its applicability. Moreover, during describing activities through writing methods she provided evidence of vertical planning of several subjects. Ermek also told about cooperative planning which is illustrated in the following passage from the interview:

… we plan collectively and do horizontal and vertical planning. Teachers of one

subject category and from the tenth and eleventh grades share the responsibilities

and visit lessons then collectively plan topics, strategies and activities. That's the way we plan.

The planning happens not only during meeting time but through the lesson visiting and integration of several subject teachers from different grades. This way of collaboration provides unity of information and development in spirally progression. Further there is information on collaboratively developed and adapted general activities and exercises for developing students CT.

Intellectually challengeable learning happens through the different activities and exercises. The idea was observed in the response of Farisa who reported to avoid providing "ready-made information as this is white and this is black." She emphasized the necessity "to create an environment which will make students ask "why questions"" which is important for encouragement of CT.

Questioning. The questioning technique was mostly mentioned in the interview by participants (ten out of twelve) (Linara, Maira, Saya, Ermek, Anar, Zhandos, Madina, Kymbat, Farisa, Gulim). Gulim said that in their department they practice three types of questions: "they are factual, conceptual and debatable." As well as she pointed out that the students from the smaller group are guided and taught how to create higher-order thinking questions. Some teachers provided examples on teaching how to create questions and how to answer them. Ermek reported that first of all students learn "to differentiate the research and non-research questions" and "give them clear understanding that there are not good or bad questions." Through this process students understand that "there are just different purposes of different questions which is important in critical thinking." Anar shared the same ideas and said that they "explicitly teach how to develop and answer those questions in order to prepare for final examinations" in their subject. Farisa emphasized that "by creating questions on CT students develop CT skills" and "CT is asking questions all the

time." Maira similarly reported the importance of questioning for developing CT by stating

"more they question more their critical thinking is developed." Farisa's response provided

list of levels of questions and how they teach students to create questions in the following

passage:

> ... we have the question boundary which we use for setting the levels for questions.
>
> There are factual questions to check understanding, then application, synthesizing,
>
> analyzing questions which are created according to the difficulty of the task. We
>
> give them [students] structured questions from different levels then we give them
>
> leveled verbs on each level. For example, analyze this or what do you think about
>
> it. In each level they have their verbs and they ask their questions and this helps
>
> them to range these questions. Of course, not all students are very happy or like
>
> easily creating these kinds of questions. There are students who face challenges
>
> while they are creating but in most of the cases as they have the verbs they are
>
> looking at the verbs and creating their questions. Usually depends on the interest. If
>
> the topic is interesting students will create different kinds of questions. Sometimes
>
> even teachers wonder why they did not create this kind of question or didn't think
>
> about this. The students have other perspectives.

From Farisa's answer it could be observed the connection with Bloom's taxonomy

and how questioning technique helps to develop different perspectives as well as develop

CT. Overall, participants define questioning techniques as effective. Moreover, the

questioning techniques work not only from the side of the teacher but students should be

also actively involved in creating a process of questions.

Madina and Saya highly emphasized the importance of developing "good

questions" in order to deepen students' knowledge (Madina) and to receive CT based

answers (Saya). Saya provided a response on how her attitude changed for the questioning

method. Before attending NIS school, she mostly used factual questions only after some

experience in this school she understood the existence and importance of higher-order

thinking questions for encouraging CT. The following excerpt illustrates her ideas:

> Questioning is a very important technique. In order to foster critical thinking
>
> teachers, need well-developed questions. First time when I came to the school I
>
> understood that the main difference of the IB school from the other schools was
>
> that of developing questions. Before, tasks were focused mostly to get only
>
> description of events: what happened, who made this event, who caused this event
>
> and what was the consequence. However, in this school teachers do not ask just
>
> factual questions, they mostly are conceptual or debatable questions. Which calls
>
> students not to have only one answer. The answer can vary. If you ask questions
>
> effectively you can get different kinds of answers. Mostly we try to ask such
>
> questions as: to what extent something was caused, how it was caused. How and
>
> why questions are mostly used for developing critical thinking skills.

Saya states the significance of asking "how and why" questions in order to promote

the students for providing broader answers to involve into the CT process. Asking how and

why questions were also mentioned by Maira and reported that those questions "will make

our students think." But she strongly connected with her teaching subject TOK and

emphasized that "TOK is about questioning." Moreover, Maira noted that questions are not

simply "factual or debatable" they are called "knowledge questions (KQ)." She also said

that creating questions is a challenging process for students as well as for new teachers of

TOK and they are taught on creating questions. The ideas of teaching process on

developing KQ is described in the following way:

> … about my own experience. There are different ways. For example, we give
>
> students a list of questions mixed together with knowledge questions and with non-

knowledge questions. Students by practicing they define only knowledge questions from the list. Sometimes I make a list of questions on board. Another way, first of all, I ask students to create individually. Then they work in pairs and share the questions. Then they introduce their questions. Once each pair of examples one by one introduce their questions. I ask the class: is the question – knowledge question or not? How do they know that? And we start discussing: yes, it is a knowledge question; why is it a knowledge question? Because TOK concepts such as this and this are in the question. Does it imply either production, application or acquisition of knowledge? If not, then this is not a knowledge question. Students if they love mathematics for example or ethics. They love asking mathematical questions. They love asking ethical questions. They love asking questions about the arts.

Maira, described two ways of teaching on developing KQ as well as provided some examples of questions. While Zhandos who teaches at the same grades (DP) stated that students are "good at making questions" and mostly this process happens naturally because students developed questioning skills in MYP (7, 8, 9, 10 grades). Teaching the technique of questioning is varied depending on grades and students' abilities. However, teachers from the same grades state divergent ideas about students' abilities probably it could be connected with subject content and requirements. Generally, questioning is a widely and commonly mentioned activity for developing CT by majority of participants and.

Group works. For more collaborative and interactive activities teachers use group works and focus on oral communication. For example, Farisa told that oral presentation tasks are one of the ways students learn to develop different perspectives and to work with various kinds of information for the given topic. Gulim provided one of the examples of assessment when students need to find the answer for a given research question and present it for the whole class in a group. Another method is suggested by Saya not only for

fostering collaborative working but also for developing CT dispositions. The following

passage show the positive sides of debate

> Debate is one of the modules to express different perspectives. Additionally, it also

calls them to respect other opinions [open-mindfulness], to be respectful for different

cultures, religions.

> According to Saya, during the debate students learn to respect other's viewpoints

and to be open-minded. Anar reported about the application of case study for developing

CT where "students through the critical review, evaluation and discussion develop their

thinking skills and ability to explore different perspectives."

> Two participants provided descriptions of lesson structure and organization which

are commonly used for creating interactive, collaborative working environments which

also promote students to autonomy. First example from Kymbat who use group work

integrated with specific activities and techniques, is described in a following way:

> For example, I had a topic "Economic development" and we had to identify which
>
> country is developed, developing and less developed. I divided students into three
>
> groups. They had the opportunity to work in a group. I used the method jigsaw.
>
> Students go around, move clockwise and explain the topic. After sharing the
>
> information, other listening students could ask questions. This way of working
>
> makes the lesson interactive.

> The jigsaw activity and questioning technique are integrated within the group work

activity which pushes students to be involved in the learning process.

Conceptual learning. The most mentioned method of learning it was conceptual

learning. Ermek, Farisa, Saya and Madina explained the importance of learning through

the concepts and provided some examples. They told that each subject has key and related

concepts and depending on the topic teachers choose them as core to explore the topic. For

example, Saya shared her experience about understanding the importance of using

concepts:

> The first time when I came to the school I started to look at the guide of the IB
>
> programme. The very first one of the requirements is developing one or two skills
>
> each lesson and all the lessons should be based on the concepts. There are one key
>
> concept and several related concepts with the subject. For the first period I
>
> understood that I do not use activities and concepts in order to provide conceptual
>
> knowledge. That's why when they started to produce something during the lessons
>
> it was mostly in a descriptive way. Then I started to prepare by myself some
>
> diagrams or some tables where through concepts students come to the knowledge.
>
> We often use "critical causative diagrams." Critical causative diagrams are when
>
> students define the cause of the event and its consequences. It is not just a list of
>
> events. What happened? What was the next event? But mostly we try them to
>
> identify the cause of one event and the consequence that can be the cause of another
>
> event. For example, our previous unit was "The Middle Ages" and related concepts
>
> were "conflict and cooperation." We say to our students that all events are around
>
> these concepts. These concepts can say everything. They do not have to memorize
>
> all the topics from the units. They can just remember those concepts. So, Europe in
>
> the middle ages was associated with conflict and cooperation because there are
>
> many examples of conflict and cooperation. Some conflicts can cause development,
>
> not only bad consequences. Sometimes cooperation of some individuals can cause
>
> better results. That's why these concepts say more maybe is more than the topic
>
> itself and it can cause them to understand as one whole topic and the main idea. The
>
> whole idea is unified by these keywords, those concepts. That's why I also suggest
>
> that other schools also use other concepts in order to think critically.

Generally, Saya explained that learning through the concepts is the way to avoid simple knowledge delivery and to develop CT effectively. Conceptual learning happens through the tables and diagrams. The whole unit is explored through the concepts which helps to understand the several topics as a unified and interrelated. Moreover, she talked about how through concepts students develop different perspectives. Farisa also refer to that conceptual learning provides to look the topic from different perspectives, and provided detailed description which is illustrated in the following passage:

> When you are analyzing through the series of concepts it directly helps to look at the topic from a different perspective. For example, depending on the topic, we ask students to look from different perspectives as a student, as a teacher, as a parent, as a global citizen, as a citizen of the city, as the citizen of the whole country, as the citizen of the planet. Then students should create the arguments that help you not only to provide a list of facts or to give descriptions. They also should analyze how this might be implemented, how this might be used. For example, when you [teacher] ask conceptual or research questions students could not answer only by listing the facts. They need to further think and develop these facts into the ideas which might help you to find out the real answer. Just giving the factual answer this is not the development of critical thinking.

Farisa emphasized that except finding the answers students should support with arguments and make their own inference and only in that case students develop CT skills. Ermek shared the same ideas about the importance of conceptual learning and developing versatile students. He highly emphasized that creating questions should be through the concepts because it "helps to create higher-order questions." About questioning through the concepts is also mentioned by Madina and she provided well-established examples:

For example, when I have taught social studies we often use the concept of

"change." For example, questions could be: How is the community changing?

What is the influence of that change? What kind of effect and consequences with

that? Does this kind of pattern repeat each time? Do you have some kind of brand?

It depends on the subject and topic. For example, we can take concepts as

"possibility, process and power." And for another case it can be from a different

perspective "social, economic, political." It depends on the topic. Students start

mind mapping those ideas. When they write their essay for example there can be a

question: why nowadays world cities are becoming too similar to each other? First,

they can see that from the perspective of the process. They can talk from the

concept of power. What is influence? Influence is that all brand-new shops are

becoming more popular. And from the perspective of possibilities, maybe

economical possibilities may give advantages to them. Also, they can look at

cultural disadvantages that they are losing their identity somehow. And also, from

the perspectives of places they can discuss. For example, to what extent cities are

different or similar. But also, they can look at it from perspectives of economics.

What are economic advantages for them? Or social advantage of disadvantage.

Also, politically. What are the benefits from a political point of view?

According to Madina, concepts and perspectives are one of the drivers for developing

questions effectively which help students to explore the topic broader. Generally, Farisa's

ideas could be used as a conclusion of advantages of conceptual learning which allows to

develop different perspectives:

I think providing different kinds of perspectives is the highest and the most

important part of critical thinking because not all people can think outside the box

and look at the situation from a different angle and perspective.

According to Farisa, looking from different perspectives is a significant skill of CT which makes you to be creative and ingenious. Generally, conceptual learning is defined as an effective way of pedagogy by participants. They pointed out its advantages which allow or push to develop different perspectives and to create higher-order thinking questions.

Participants provided some specific and widely available activities and their description could be easily found on the internet. For example, Gulim mentioned about using brain-storming activities, mind-map, jigsaw, fishbone while Linara said that she creates by herself or adapts from the internet different graphic organizers. However, she emphasized the importance of showing the example of how to work with diagrams and then make collaborative discussion or sometimes students could develop their own graphic organizers. Ermek gave an example how to use mind-map at the beginning and at the end of lesson and connect with concepts, which is described in the following passage:

> Another way is working with diagrams, or mine maps to see how certain topics can be connected to the given concept. You can do that either at the beginning or at the end. If you use it at the beginning it is helpful to students to propose what they're going to study. At the end they can give the broader mine map and then you can check the things and analyze and justify.

According to Ermek, creating mind-map is an appropriate activity to show the connection among ideas.

Specific Activities Suggested by Participants. It was provided some more specific activities by participants. Kymbat gave as an example "Think-Share-Discuss" activity which makes interactive lessons. First of all, students think individually and share their own ideas in pairs and then discuss in a group. Another interesting activity is "Thinking aloud" which should be used for making active communication which gives students clear understanding. Madina highlighted importance of this activity as following way:

There are some kind of students who are a little bit lazy to think. If you ask

additional questions, they think it's the easiest one. It is investigated and proved

that if you are not loudly talking about what you are thinking you are not really

understanding what you are going to say. Because in our mind we always think that

we think correctly. But when we start sharing with someone then you can

understand if you are right or not. That's why most of the students have the

problem. They think that they know. But when they start sharing they can identify

mistakes or direction.

Madina suggests to use "thinking aloud" in order to activate the thinking process

and to motivate the students for the inquiry process.

Another interesting activity for active thinking was also suggested by Saya which

was developed by her foreign team-teacher. The description of the activity is provided in

the following passage:

He [team-teacher] is not teaching by explaining something. He [team-teacher]

mostly calls students to guess, to answer, to come to that conclusion. That teacher

mostly can use only some *terms, keywords and concepts*. He writes some keywords

randomly on the white board and the students *have to use arrows and identify what

is the cause, what is the consequence*. The consequence is only one word. At first

appearance, the complex diagram does not say anything. But those students who

draw, who participated in drawing and completed this diagram can explain by their

own words the events. And of course, it calls students not just to describe events

but analyze them, to show the results from different perspectives and use

conceptual explanation. Another activity is using different *visualizations* as

cartoons, pictures, photos, maps and videos. For example, using ten different visual

resources without textbooks then lead several of the lessons by asking the students

their opinion and identifying what was the purpose of creating this cartoon. What

can they [students] say? What is the main idea of this cartoon? Sometimes some

students express very interesting opinions about that cartoon. Moreover, using

visual resources can cause students to think more deeply.

According to Saya, using **keywords then creating or drawing diagrams** and questioning

helps students to develop the events by themselves, to analyze, to look from different

perspectives, to explain through the concepts. Another activity through **visualization and**

questioning is also an effective method for thinking skills. Overall, specific activities

could be used in any subject and adapted from various sources as well as could be

developed by teachers.

      Writing Activities. Writing activities and exercise were also mentioned as the

strategy for developing CT. Writing takes a special place because in the DP programme

students have the task of developing argumentative essays (Linara, Maira, Saya, Ermek).

One of the participants said that developing arguments "is a really difficult and tough

process for our students" (Maira). Teaching writing skills happens gradually which was

described in the response of Linara as following:

      We've made the simple one for the seventh and eighth grades. For example,

      students start to write one paragraph. Teachers teach them to write at least one topic

      sentence through paraphrasing the question and further parts step by step. In the

      ninth grade they [students] start to write the structured essay. And for tenth grade

      we plan to teach them also how to write an evaluation for the arguments to prepare

      them for the DP programme. Because in our department, in the DP they [students]

      most of the time write an essay as preparation for final exams.

 Linara explained that writing skills start from the seventh grade from writing paragraphs

then step by step move to a more structured form of essay. From the description it could be

observed vertical planning which finally focuses on final exams. About writing paragraph

was also mentioned by Ermek:

> We also welcome our students and instruct them to write the special paragraph of
>
> judgement. It is not just bullet points, not just sentences. We also ask them
>
> [students] to explain, not just provide what are the limitations, but say why they are
>
> limitations. That's also a part of critical thinking.

Ermek believes that writing paragraphs with rational support develops CT skills. Maira as

a starting point in TOK provided example which is connected with reading process and

explained as following:

> When they [students] are in the process of writing an essay, they learn how to build
>
> an argument and how to develop their argument. And also, they learn how to
>
> explain their idea. At the same time they link with other different perspectives. This
>
> is really difficult and tough for our students. That's why we are here to teach them
>
> and to practice those skills. Of course, it is very simple but let's say one of the often
>
> used strategies is reading and note taking. This is the starting point. We give them
>
> extracts from the TOK textbooks. They read and take notes. We teach them how to
>
> take notes. Not just writing, copying and pasting. But reading and extracting the
>
> main points how to map them. That's the starting point.

Maira gave as an example reading and making note-taking activities as a beginning for

further development of arguments and creating essays. The more extended description of

the teaching process of argumentative essay was also provided by Saya who mentioned

that there were some problematic situations about the teaching process. The problem was

that teachers differently taught how to write argumentative essays but later collectively

developed one template for the whole department. The Saya's discussion were given in the

following passage:

One of the strengths in critical thinking is doing the argument. We were struggling how to teach students to do the arguments correctly. And last year with teachers we found out that there is a difference in explanation among the teachers in our department. And that's why we made action research. We collaborated with Kazakh history teachers, with social study teachers, with economic teachers and we found out that we all teach them differently how to do that we made one special essay structure. And we are divided between us who will teach this part or that part. So, this was a real difficulty for us and we dealt with it nicely. This year our students, for example at tenth grade they already follow the structure explicitly. They understand it clearly. One moment was that we didn't teach them the evaluation part at the end of paragraph to evaluate all the things they have said in the argument. So, we plan to do that for next year. For example, in the ninth grade students they already know the structure of the essay and the tenth grade students will do the evaluation of their own arguments. So, why I was talking about the essay is because making an argument is one of the main criteria. And of course, providing at the end different perspectives. Some students just still finish with one argument and considering one perspective. That's why we provide them with different perspective sources at the lesson. To make them understand that this issue can be considered from other sites as well.

Saya provides a detailed description of the developing process of template for argumentative essay. It is clearly seen that developing arguments is a challenging process not only for students but also for the teachers which is evidenced by teaching in different ways. However, the whole department collaboratively developed one template. According to Saya, through the essay writing students develop argumentation, looking at different perspectives which are core of CT.

The advantageous part of the unified template is that students start to show higher grades, to use academic words, to provide well-established opinion, to organize the structured essay as introduction, main part, conclusion (Saya). The description of template was provided in the following passage by Saya:

It's one of the versions. When we write one argument, second argument, third argument and the last argument is only a counter argument I mean an opposing view. But now we [teachers] are thinking about writing counter arguments by the end of each main argument, each paragraph. For example, they [students] could write about change then about conflict. They can write what was the cause of that conflict. Then they can provide support, different evidences to support their view. And the conclusion and they have to write opposing counter argument and different perspective in that paragraph and then only to start another paragraph. So now we are just starting to practice this style. But the first style is also good. Because somehow it might be easier organizing and time saving checking works. We [teachers] are still developing this structure.

According to Saya, there are different versions of argumentative essays but for now they use one template as a whole department and continue to develop different versions.

Source Evaluation Activities. Farisa and Saya noted about using the CRAAP (Currency, Relevance, Authority, Accuracy, Purpose) analysis and OPCVL (Origin, Purpose, Content, Values, Limits) to evaluate and to think critically. Moreover, Saya reported these activities within the IB programme because in the DP and the IB exams students have the tasks connected with these strategies. Saya talked that using these source evaluative activities or strategies they teach students how to organize and to reference the sources. Additionally, through this process students start to learn how to work with sources, how to choose the sources in order to create strong arguments and to provide

rational inference. Saya provided example on how to teach referencing and ownership which is presented in the following passage:

> Our school provided a handbook on "Academic honesty" for teachers. We have the special part of the APA [APA is the style of documentation of sources used by the American Psychological Association] which shows how to organize sources. There are two parts in-text citation and reference. We require students not only to show the sources at the end of information but to make in-text citations which is a new process for students. For example, we use some small activities. We give them three sources and ask them [students] to use all of them and to put in-text citations to show where the idea was taken even if they paraphrase them. We have some activities in order to help them to remember. For one lesson we can ask to create reference for photo materials, video materials. For another lesson ask to reference online newspapers, journals or books. After sometimes teachers provide some correct versions and incorrect ones and they [students] have to identify. Or we can provide the beginning and the continuation they can imagine. There are different kinds of activities for learning APA.

According to Saya, they teach students for referencing and ownership through different kinds of activities because it is a new notion for students.

Assessment as a strategy and reflection. For the assessment techniques Farisa mentioned about using "pair evaluation, self-evaluation, group evaluation." As an example, she talked about using already prepared criteria for pair assessment. Additionally, Ermek mentioned the use of reflection during assessment by highlighting its importance which is illustrated in the following excerpt:

> … from my own experience I know that if students take all the assignments seriously, long term assignments, and then do all the work step by step, they have a

lot of things to share with a teacher. And reflection helps not only to teach them to

share with a teacher but also to self-reflect on his own progress; because in the IB, I

think, reflection is one of the crucial important things that makes IB different that is

why we try to reflect all the time.

Ermek connected reflection with assessment which allows not only to follow the progress

but to make self-reflection.

When participants were asked about challenges and difficulties during

implementation of new teaching and learning approaches related to CT. Gulim and Ermek

emphasized the fact that students in their school selected which make their "job easier"

(Ermek) and after one year most of students are adapted to the requirement of the school

there is no need sometimes explanation of some instructions (Gulim). However, teachers

who teach in the seventh, eighth and ninth grades state about challenges with language

proficiency (Farisa, Saya, Gulim, Anar, Linara). As a solution for this issue most of them

provided the same ideas as working with terminology, asking students to use new

terminology, for assessment students have choice for the format (writing or oral) during

short summative. Additionally, Saya emphasized the importance of differentiation because

of different abilities of the students. One more challenge which is related to the teachers

was noted by Linara about providing more time for lesson planning as a school

administration support.

In conclusion, questioning techniques are mostly used as well as integrated into

different activities such as the group work, conceptual learning and creating graphic

organizers. Participants describe activities and exercises constantly by connecting with the

final assessments which demonstrates the interdependence of pedagogical practices and

assessments. Moreover, the focus of mentioned strategies and techniques was on

developing different perspectives, making interactive learning and working with higher-

order thinking questions and tasks to avoid knowledge delivery. Overall, there were some

difficulties mentioned by participants but collaborative working, making small researches

and planning are the ways for finding solutions.

Chapter V: Discussion, Conclusion and Implications

In the previous chapter, I provided information about data analysis and the main

findings of this study, which were developed from document analysis and face-to-face

semi-structured interviews. The focus of this chapter is on the interpretation of the data in

relation to the research questions about Humanities teachers conceptualization of CT in

one of the Nazarbayev Intellectual School (NIS) schools with the International

Baccalaureate (IB) programme and their pedagogical practices for developing CT skills of

students. The chapter also includes a discussion with interpretation from literature in the

field of CT and pedagogical practices for developing CT. As a result, different

conceptualizations of CT depend on the context and adaptation of general principles and

pedagogical strategies for developing CT. The following sections are organized into two

major parts: Teachers Conceptualizations of Critical Thinking and Pedagogical Practices

for developing CT of Students.

Teachers Conceptualization of Critical Thinking (CT).

According to Michael and Fullan (1992), teachers play a significant role during

educational reforms. They are main conductors for changes within the school and

classroom (Allamnakhrah, 2013). Additionally, it is worth mentioning that previous studies

state that teachers beliefs, perception and understanding have direct impact on their

pedagogical practices (Fullan, 2001, as cited in Baildon & Sim, 2009; Chen & Wen, 2018).

Thus, teachers and their beliefs are the essential agents for infusion of pedagogical

innovations.

Novelty of CT. The literature in general asserts that understanding of CT by

teachers and students could be influenced with different contextual factors as culture,

policy, society, economy and ideology (Baildon & Sim, 2009; Chen & Wen, 2018; Mok &

Yuen, 2016, Moon, 2007). Moreover, Guthrie (2018) and Alexander (2001) state that

classroom practices are directly interdependent with the culture of the country. In previous

studies Burkhalter and Shegebayev (2010, 2012) reported that CT is a new concept for the

education context of Kazakhstan.

The majority of participants of this study asserted the same idea about novelty of

CT. It was observed when teachers talked about notions related to CT. Generally, they

stated that CT and its required learning environment and related notions are new for

Kazakhstani education context. When participants start to talk about their teaching

experience in NIS school with the IB programme they compared with their own learning

and teaching experience before NIS IB. During discussion about teaching experience in the

IB programme, learner-centered education (LCE) is reported as new and challenging.

These ideas in a line with that the core notion of CT is LCE (Burkhalter, 2016; Lai, 2011;

Schweisfurth, 2013) is defined as a contextually and culturally challengeable phenomenon

(Schweisfurth, 2013). Burkhalter and Shegebayev (2012) similarly state that LCE and

collaborative learning could be culturally challenging for the education system of

Kazakhstan. Additionally, participants mentioned several features of the IB programme

and defined them as new and distinctive for the educational context of Kazakhstan. They

are criteria-based assessment, approaches to learning, academic honesty and students

autonomy which are also related notions of CT and significant elements for fostering CT

which are described further talk about Soviet education. Generally, participants of this

study identify the LCE as new and challengeable in their teaching experience which is in

line with most of previous studies (Burkhalter, 2012; Lai, 2011; Schweisfurth, 2013.

Participants reported that the Soviet or post-soviet education system mostly focused

on memorization and teacher-centered way of teaching. In those times teacher was defined

as an expert and only person who provides the correct answer and there is no other

perspective. These ideas are similar to findings of Burkhalter and Shegebayev (2010;

2012). Authors also asserted that Soviet education system was focused on rote learning, teacher-centered classroom practices and subjective assessment systems (AS) with focus on testing the facts. Thus, notions such as criteria assessment (opposite to AS of Soviet education) , approaches to learning (Soviet education focused on memorization) and students' autonomy (cult of teacher as an expert in Soviet education) could be additional evidence of the novelty of CT. Moreover, authors refer to the teaching and learning process based on authoritarian teaching culture which contradicts the principles of the learning environment for developing CT (Burkhalter & Shegebayev, 2010; 2012).

However, one of the participants of this study with Soviet education background and long teaching experience refuted the absence of CT by referring to the existence of CT but under the different terminology and he stated about application of CT before coming to NIS with the IB programme. Participants' ideas are similar with studies with findings that present ambivalence for the novelty of CT in the Soviet education and in the education system of Kazakhstan. Fimyar (2015) states her participants reported about effective integration of theory and practice in Soviet education and Tursunbayeva's (2018) participants reported about existence of CT in Soviet education under different names. Distinctiveness of this response could be connected with special attitudes to the Soviet education system, epistemological beliefs (Allamnakhrah; 2013) or other influential factors as educational and cultural background (Chen & Wen, 2018). Thus, there is a group of people who disagree on the novelty of the phenomenon of CT.

There were some participants who came immediately after the university and have two or three years of teaching experience in NIS IB school and who also state about familiarity from the university time. Their received knowledge and learning experiences are helpful in their teaching process. These ideas are similar to literature about transferring their learning experience into teaching experience (Burkhalter & Shegebayev, 2012) and

repeating the model of action presented by their educators in their university (Manuel &

Dutton, 2019). Therefore, the culture of educational organizations has a great impact on

pedagogy of the future teacher.

Generally, facts about Soviet and post-Soviet education were given by the majority

of participants were aligned with findings of Burkhalter and Shegebayev (2010; 2012) who

state about novelty and possible barriers of infusion of CT into the education system of

Kazakhstan. The details for the barrier of implementation of CT are discussed further.

Cultural and contextual influences. For more examples of cultural and contextual

influence on understanding of CT within the Kazakhstani context, participants from this

thesis study provided some facts. They mentioned difficulties during teaching on how to

write argumentative essays. Teachers told that teachers taught in different ways in different

subjects which make the writing process challenging then teachers collectively developed

one template for the whole department and students still define it as a problematic task.

These facts are similar to the finding of Durkin (2004, as cited in Moon, 2008) that people

from Eastern world have difficulties during creating arguments. The author also noted

about "referencing and ownership" as a new and difficult concept for Eastern education

culture (Moon, 2008). The same ideas about difficulties during working with sources were

highlighted by participants of this thesis study. Thus, writing argumentative essays and

referencing strategies have a special place which requires proper teaching approaches.

Another example to show contextual and cultural differences can be seen in the

results of the current study and studies in Arab states. As a comparison Arab states were

chosen for this study because there are some similarities between situations of Kazakhstan

and Arab states. This study focused on teachers' conceptualization of CT and their

pedagogical experiences. The students from secondary schools of Saudi Arabia

(Allamnakhrah; 2013) and Jordan (Alazzi, 2008) have a low level of CT and the

pedagogical practices of those countries identified as poor one for developing CT (Alazzi, 2008; Allamnakhrah; 2013) which the same situation was observed in Kazakhstan with students' low indices of CT (NU, 2014; OECD, 2014) and lack of CT in classroom practices (Ibraimova, 2917; Nurgazina, 2019). However, a phenomenon of CT is defined as a new one in Gulf states (Alazzi, 2008; Allamnakhrah; 2013) but in case of Kazakhstan it differentiates. There are findings which state CT as a new concept (Burkhalter & Shegebayev, 2010; Gimranova, 2018; Nurgazina, 2019) and those which show ambivalent findings (Fimyar, 2014; Tursunbayseva, 2018). Overall, the similarities between Golf states and Kazakhstan only on general and observable aspects as test results and lack of CT in pedagogy. For the novelty of the concept of CT there are people in Kazakhstan who think similarly with Gulf states people and those who disagree with it and claim existence of CT under different names.

Importance of CT. For the importance of CT, participants of this study saw more connection with their teaching subject and defined it as significant approaches to learning of the teaching process. There were several participants who increased the scope of importance and saw the connection with the personal purpose of using one's own life and raising responsible citizens for sustainable development of the country. The importance of CT highlighted in the study by Allamnakhrah (2013) with pre-service teachers in Saudi Arabia, they connected the importance of CT with the political situation within the country and related it with formation of correct ideology and making decisions without emotions. In another study in the secondary school of Jordan, in-service teachers underestimate the importance of CT in classroom practices by referring to the absence of cultural support (Alazzi, 2008). Generally, the importance of CT is highlighted by teachers from Kazakhstan and Saudi Arabia but meaning of importance depends on the context requirements.

Familiarity of CT. The familiarity with CT of the participants from this study could be divided in two: participants compared it with previous experience before starting to work in NIS with the IB programme and participants compared it with experience in this school which is a research site. the participants of this study had provided extended conceptualizations and successfully connected with their own classroom strategies. These could be connected with the programme and school philosophy which strongly focused on developing students' learning skills. Thus the programme itself fosters and drives the teachers to encourage the CT in their classroom practices with assessment and high emphasis on approaches to learning. In the study made by Alazzi (2008) in-service teachers from the secondary schools of Jordan showed lack of familiarity with the definition and strategies of CT. The contextual requirements of the state and schools are different which also one of the influential factors for the interpretation of CT.

Conceptualization of CT. Turning to the conceptualization, most literature report the large number of definitions for CT in different approaches. The conceptualization of CT by participants of this study varied in the length of description and explanation but it does not mean that they show limited understanding because during discussion about pedagogical strategies they provided more insight.

There are definitions for CT in philosophical, psychological and educational approaches and later it was developed the mixed version of definitions from each approach. However, critical thinking is complex and broad phenomenon which has long-term historical establishment and explanation or description of its nature and purpose could not be entirely provided or narrowed in one definition (Paul, Elder & Bartell, 1997; Karbalaei, 2012, as cited in Uribe-Enciso et al., 2017). Its complexity and immenseness lies in the fact that it included not only a measurable list of skills (abilities) but also dispositions (attitudes, characters) (Fabian, 2017; Lai, 2011; Mok & Yuen, 2016;). Other

studies even state that CT has components of metacognition (Lai, 2011; Nhat et. al.,

2018).

Most of the participants of this study defined CT as a skill while others as well as

connected with some dispositions. Those who define CT a skill connected with assessment

criteria which is separate for CT in Humanities department and listed such skills as

recognizing different perspectives, creating arguments, analysing and evaluating sources.

The next group participants who conceptualized through the lens of TOK subject and

highlighted skills as effective questioning, making inference and connecting with real life

situations. Except those skills are indicated above there were other skills which were

provided by other participants. They are rational thinking, independent thinking and

working, problem-solving skills, reflecting, synthesizing, interpreting. Only a small part of

participants mentioned truth-seeking disposition. The commonality among

conceptualizations can be seen by noting different perspectives, creating arguments,

analysing, evaluating, finding the connection among ideas, making inference and

connecting with real life situations.

The pre-service teachers from Saudi Arabia who conceptualize CT as "careful

thinking" for making analysis, judgement, decision, solving problems (Allamnakhrah,

2013). In another study made by Almulla (2018) in three male-school of Saudi Arabia,

teachers conceptualize CT as an ability comparing and contrasting, making conclusion and

inference based on accessible resources. By comparing conceptualizations in Kazakhstan

and Saudi Arabia it could see there are differences in the definitions provided by teachers

which could depend on different influential factors. However, conceptualization of CT by

NIS teachers are broader in comparison with colleagues from Arab states.

From the participants conceptualization it could be observed the similarities with

the definition which is provided in the Delphi Report. According to the Delphi Report, CT

is "purposeful and self-regulatory judgment" (Facione, 2000, pp. 7-8) which is not mentioned by participants but separate abilities as making interpretation, analysis, evaluation, and inference were mentioned by most of participants. The purposeful and self-regulatory judgment should result in those abilities. Next part about "explanation of the evidential, conceptual, methodological, criteriological, or contextual considerations upon which that judgment is based" were described during discussion about pedagogical practices (Facione, 2000, pp. 7-8).

While talking about the importance of CT, the teacher participants showed connection with personal and stated purpose which is mentioned in the definition of the Delphi Report. The last part definition about CT "CT is not synonymous with good thinking, CT is a pervasive and self-rectifying human phenomenon" (Facione, 2000, pp. 7-8) is similarly observed in the responses of some participants by stating that CT is versatile skills which is necessary for deepening and application of knowledge. Thus, by showing the similarities and differences it could be seen that participants of this study bestow upon the importance, complexity and multifacetedness of CT. The connection with dispositions is presented further in discussion about pedagogical practices.

An important and novel finding of this study was how participants in this study considered CT as related to inquiry. Instead of Facione's (2000) description, "CT is essential as a tool of inquiry," they thought about it in the exact opposite direction. Participants in this study considered that *through* inquiry and teaching strategies, students develop CT.

Pedagogical Practices and Critical Thinking: General Principles for Pedagogy of Critical Thinking

In this section, I discuss the general principles for pedagogy of critical thinking teaching in relation to the literature.

Direct, Indirect or a Mix of CT in Teaching. The participants of this study use indirect and combination ways of teaching of CT. They reported that CT and its related notions are embedded into the school programme and the curriculum of subjects contain an orient to teach CT. The combinational way is used especially for MYP programme students to explain what CT is and explicitly to teach the techniques on writing, questioning activities etc. Additionally, their assessment system is also support the development of CT which is considered as essential factor because literature shows the interdependence between assessment and pedagogy (Costa, 1991; Tener, 1995; Rodd, 1999, as cited in Collier et al., 2002, p.37; Lattimer, 2015). The use of assessment as a strategy to encourage CT was also reported by participants which align with Moon's (2008) ideas about its effectiveness. Several studies emphasize the significance of active learning environments (Simpson & Courtney, 2002; Velde et al., 2006, as cited in Gul et al., 2014) and student-centered approaches to foster and to develop CT (Bonk & Smith, 1998), Paul, 1992, as cited in Lai, 201; Burkhalter, 2016). Because of the complexity of CT there no one established teaching and assessing strategies of it (Gul et al., 2014; Moon, 2007). However, the teaching of CT could be direct, indirect or a mix: Halpern (2001, as cited in Lai, 2011) states about effectiveness of indirect way of teaching while Bailin et al. (1999, as cited in Nhat et. al., 2018) asserts that combination of them is the most successful one. Therefore, the programme itself is a driver to foster and to develop students' CT.

Teaching Dispositions. The use of collaborative learning approaches was mostly mentioned by participants of this study. They mentioned this when talking about activities and exercises in order to make interactive lessons. The list of activities mentioned by participants were similar which are provided by Burkhalter (2016) such as discussion, pair and group works, questioning. The compound aspect of interactive (Moon, 2008; Fabian, 2015) and student-centered learning is collaborative and cooperative learning.

Additionally, according to participants through this strategy students develop dispositions

as providing the answers or questions constructively (maturity of judgment), respecting

others' viewpoints (Bailin et al. 1999, as cited in Moon, 2008) and becoming self-

responsible (Burkhalter, 2016). More talk about development of CT dispositions were

mentioned when participants talked about learning atmosphere.

Learning Atmosphere. The emotional and psychological conditions of the

learning atmosphere for CT is distinctive. Literature notes several essential aspect for

learning atmosphere such as "emotionally safe and caring environment" (Fogarty, 1997,

as cited in Collier et al., 2002), "a place that will tolerate risk-taking", development of

students' self-esteem (Moon, 2008, p. 132), time for thinking (Tobin, 1987, as cited in

Collier et al., 2002). The participants of this study mostly highlighted *avoidance* of

teacher-centered teaching approaches to create a comfortable atmosphere for students- an

atmosphere or environment where students can share their ideas and should be provided

with autonomy. The participants seemed to understand that the teacher takes the role of a

facilitator or a mentor who guides them, believes in their abilities and develops emotional

intelligence.

Ambiguity of Student Dispositions. Most of the dispositions as open-mindfulness,

self-confidence, respect and tolerance, were mentioned during discussion about the

atmosphere. However, there is ambiguity about possessing those dispositions because

some teacher participants of this study stated that "students have to be open-minded,

respect and trust to teachers" while other states as "students develop self-confidence, learn

respect, learn to be independent." This ambivalence elicits some questions relative to

classroom life which could be understood only through observation which is the limitation

of this study. One fact shared by participants for the discrepancy for the ideas about

"tolerate risk-taking place" (Moon, 2008) is avoidance of controversial topics as religion,

homosexuality, prostitution and outcasts which contradict for the promotion of CT (Mayer,

1986, as cited in Moon, 2008). According to Moon (2008), there should be a place where

students could express their opinions and a place which is open for questions. Thus, these

ambiguities somehow show that school policy and some participants are not fully

supported and aware of developing CT dispositions.

If compare with the list of dispositions provided in the Table 1 and in the Delphi

Report participants clearly mentioned only some of them such as open-mindness, self-

confidence, respect and truth-seeking. However, during discussion about general principles

and pedagogical strategies it was observed that the programme and classroom practices

promote some dispositions intrinsically. For example, disposition from the Delphi

Research --diligent in seeking relevant information -- was promoted and developed

through the source evaluation activities as CRAAP test and OPCVL. Thus, even though

teachers did not mention some dispositions, the programme itself develops those

dispositions (APA, 1990, as cited in Facione, 2000, p. 9). Generally, most participants do

not see the dispositions as a part of CT probably because of suggested or promoted

peculiarities of the IB programme.

Physical Environment. Except teaching approaches and abstract notions required

by the principles of CT there is an observable part, the physical environment, to foster CT.

Collier et al. (2002) and Fung (2014) highly emphasized the necessity of movable furniture

for creating active learning space. Most participants of this study stated that the school has

an appropriate list of resources for developing CT such as interactive board, computers,

cards for intellectual games, library full of books and access to different platforms.

However, there was an opposite response with previous ideas, where a participant noted

some challenges in classroom furnishing by highlighting the monotypic organized

classroom spaces. The ideas about appropriate furnishing and space can be distinguished

within the same school which could be connected with subject content, teachers'

pedagogical approaches or changing conception of the time to the standardized style of

classroom organization.

Information and Communications Technology (ICT). Considering modern

technological time, information and communications technology (ICT) becomes another

indispensable component of the physical environment. Hitchcock (2000, as cited in Collier

et al., 2002) states the significance of ICT as a fundamental of cultivating CT. However,

there were participants who stated that ICT makes the teaching process easier but pointed

out the possibility of development of CT without ICT by referring to the importance of

teachers' knowledge. Moreover, several studies assert that technology-enriched

classrooms positively impact on promotion and development of CT (Hopson, Simms &

Knezek 2001; McMahon, 2009). The use of ICT appears to make the working process

organized and quicker but the appropriate application and teachers ability to use them

effectively is another question. Otherwise it could have a reverse effect on the learning

process.

Influence of Educational Experience and Defining CT. There are various

definitions for CT which makes the teaching process "controversial and confusing" for

many teachers (Bensley & Murtagh, 2012, as cited in Schmaltz, Jansen, & Wenckowski,

2017, p. 459). According to Adnerson (2015), most educational documents explain CT

through the list of transferable skills which further find reflection on the teaching practices.

Additionally, it states that limitation of pedagogy by given guidelines does not foster CT

(Kember 1997, as cited in Pithers & Soden, 2000, p. 247). Thus development of

contextually understable definition is the basis for action (Moon, 2008). The development

of a common definition or formation of understanding on CT in this study saw that some

teacher participants pointed out their university and others collaborative working

environments within the school as providing an understanding for them. There were

participants who had familiarity with CT in their universities and those who emphasized its

impact on their teaching practices. They explained how they applied university knowledge

and learning experience in their pedagogy which align with the literature. These findings

could be related to the literature. For example, Burkhalter and Shegebayev (2012) state

about later repetitions of the learner experience in the teaching process as well as Manuel

and Dutton (2019) state about using the role model (lecturers from university) as a teacher.

The educational background appears to have a great influence on the teachers' pedagogy

and classroom life by application of what was experienced.

School Support for CT Teaching Practices. Those who define CT as new and

start to use CT in NIS IB stated that developing their own CT practices within the school

were supported (?). Teacher participants highlighted such school aids as the IB and local

courses, mentoring, working with experienced teachers, visiting and observations of

lessons. The majority defined foreign courses and courses which were already infused with

CT defined as more effective which are in line with the ideas of Mayer (1986, as cited in

Moon, 2008) and Toy and Ok (2012) about effectual training through the infusion of CT

into the teaching discipline. Moreover, several participants highlighted the significance of

master in CT of the teacher for providing deeper knowledge. Achieving the depth of CT is

directly connected with epistemological beliefs of the teacher which is reflected in

pedagogy (Anastasiadou & Dimitriadou, 2011, as cited in Allamnakhrah, 2013, p. 200).

Thus, a teacher's background as a learner and their epistemological beliefs appears to

be an essential component of critical thinking.

Activities and Exercises for Developing Critical Thinking

This section focuses on activities and exercises that were suggested in literature and

by participants of this study who provided contextual insight on the implementation

process. Generally, the discussion is about such strategies as questioning, group works, specific activities, reflection, writing and assessment.

   Questioning. Indeed, questioning is commonly used techniques (Almulla, 2018; Marzano, 1993) which is also confirmed by the participants of this study. Moreover, they stated about integration of it into other different activities which is in line with ideas of Brown and Kelley (1986), Hemming (2000, as cited in Almulla, 2018). The questions should be "open-ended" (Browne & Freeman, 2000, as cited in Almulla, 2018, p. 21), "appropriate" (Collier et al., 2002, p. 16) and stimulating (Haynes & Bailey, 2003 as cited in Snyder & Snyder, 2008, p. 95), "controversial and difficult" (Mayer, 1986, as cited in Moon, 2008) in order to develop CT. The same ideas about types of questions were shared by participants of this study by referring to the use of conceptual, debatable, research and inquiry questions which develops CT skills of the students. Moreover, they highly emphasized teaching students on developing effective questions which is significant for developing CT. Teaching to the questioning happens by providing students with some questions from different levels the students create their own questions. Thus, questioning techniques could be used in both positions. Not only teachers should ask questions but students should also learn to ask questions an effective way for developing their CT skills.

   However, an interesting fact was provided by the participant. Teachers who newly came to the TOK subject, which focused on developing CT skills of students, have problems with developing knowledge questions (KQ). That is why teachers have separate training courses on TOK which are held by experienced teachers in TOK subject. Moreover, several participants also talked about developing their CT skills due to TOK subject. These facts arise the question about further exploration with observation. Previous study made by Ibraimova (2017) reported about use of lower-order thinking questions in

lessons. Therefore, there are some inconsistencies between what was said about strategies

and their application in the classroom life.

Group Work. Another commonly used activity is group works in different forms

through discussion, specific activities and conceptual learning. Most of the group works

follow the structure of "the three-part model of Sternburg and Swirling" (2005, as cited in

Hajhosseiny, 2012), where first of all teacher provide some information then through the

group discussion, evaluation, considering different perspectives and questioning come to

the conclusion. According to the description of the lesson structures by participants they

follow the same organization. Moreover, group work activities develop CT dispositions

such as self-confidence and open-mindness (Hajhosseiny, 2012). The participants of this

study pointed out dispositions as respect and open-mindedness which could be developed

during debates.

Most of the participants highlighted the learning through the concepts integrated

with specific activities such as using mind-map, graphic organizers, which is the most

effective approach for developing different perspectives and questioning abilities.

According to participants recognizing different perspectives and questioning are the

highest level of thinking connected with CT. There is a long list of specific activities which

could be integrated within any strategy depending on teachers' mastery. They are uc

""think-pair-share, round-robin discussions, student interviews, roundtables, gallery walks,

and 'jigsawing'" (Lai, 2011, p. 35), "graphic organizers as a concept map, argument

diagrams, fish-bones, KWL charts (explanation for abbreviation - students identify what

they already know, what they want to know, and what they have learned upon completing

instruction)"(Bonk & Smith, 1998; Van Gelder, 2005, as cited in Lai, 2011, p.36). The

same list of activities were mentioned by participants but they stated the importance of

adaptation and differentiation because of different levels of students' abilities. It is

noteworthy that participants talked about creating diagrams, tables and mind-maps by

themselves and providing opportunities for students to create their own graphic organizer.

The process of working supports the idea about showing the example or being the model of

presenting the existence of different forms or ways of working (Moon, 2008). Other

activities which are adopted and positively appreciated are think-pair-discuss, thinking

aloud, creating diagrams through keywords and using visualization for developing events.

Suggested activities push the students to think critically, develop conceptual understanding

and different perspectives. According to participants' experience, these mentioned

strategies, activities or exercises are effective to avoid memorization and create deep

understanding not only of one topic but of the information from the whole topic.

As a contextual comparison, Fung's study (2014) in two schools of Hong Kong was

chosen to compare with the case of this study. Group work activities in both cases in Hong

Kong schools and NIS defines as a strategy to create active and collaborative learning

which is effective for developing CT. The role of the teacher is as guider (Fung, 2014),

facilitator and mentor (participants of this study) who support and direct the students'

learning process. In both contexts teachers observed that students with higher abilities help

the low-achievers. As school administration support Hong Kong teachers and NIS teachers

touch on a topic about workload to provide more time for lesson planning. However,

teachers from Hong Kong (Fung, 2014) mentioned time which is appropriate for group

work within the lesson while teachers from NIS did not mention anything about time.

Probably, NIS teachers did not mention time because there is already enough time for

lessons (80 minutes) which work in an automatic way. Tobin (1987, as cited in Collier et

al., 2002) highly emphasized time as an essential compound of thinking activities. There

are different activities with time which is also effective to encourage CT. They are "wait

time" (Tobin, 1987, as cited in Collier et al., 2002), "quick time, time pressure" (Moon,

2008).   Thus, there are some similarities on some general components of implementing

group work.

   Writing. The writing activities were another widely used strategy by participants of

this study. The reason for the great focus on this strategy is explained with the connection

of assessment. Their final examinations focus on creating essays in the final grades. From

this it could be observed the connection of pedagogy and assessment which are

interdependent from each other (Tener, 1995; Rodd, 1999; Costa, 1991, as cited in Collier

et al., 2002, p. 37; Lattimer, 2015, Moon, 2008). According to the participants, the writing

abilities develop gradually starting from one paragraph to the essay and from the seventh

grade. Literature also states that writing should start from short note-taking and conclusion

(Moon, 2008), summaries (Bonk & Smith, 1998). There are other activities as short

answers, recognizing text structure and making annotations, reflective commentaries and

editing written works (pp. 154-155). Moon (2008) states that writing activities could be

used not only for individual tasks but also for group works. However, the use of writing

activities for the group works was not mentioned by participants.

   It is worth pointing out that participants stated the writing argumentative essay was

defined as challengeable for students. Additionally, the explanation of teaching ways were

different among teachers and based on action research teachers developed a unified

template which is used not only by teachers who teach in English language but by teachers

who teach in Russian and Kazakh languages. These facts could be in line with Durkin's

(2004, as cited in Moon, 2008) statement that people from Eastern world have difficulties

in developing arguments because of language peculiarities and cultural realities. Thus,

implementation of writing activities require multi-faceted approaches which focus on the

understanding and developing unified version.

Another notion is suggested by Durkin's (2004, as cited in Moon, 2008, pp. 61-62) as a new and challengeable one is "referencing and ownership of ideas" which is also noted by participants of this study. They highlighted that working with sources is another essential strategy for developing CT and preparation for final examination in DP. Teachers noted two main activities as a basement for source evaluation and checking its appropriateness for applications such as CRAAP test and OPCVL. Additionally, schools promote the ideas of "Academic honesty" by teaching students for APA which is the style of documentation of sources used by the American Psychological Association. Participants use different strategies and explicitly teach the working with different types of information.

Assessment as a Tool for Promotion CT and Reflection. Assessment as a strategy and reflection were mentioned by some participants. Participants noted about having criteria assessment for CT and its use for pair evaluation, self-evaluation, group evaluation. The use of assessment as a tool for fostering CT is mentioned by small parts of teachers while literature suggests activities as developing criteria and peer evaluation (Moon, 2008). The small attention to the assessment as a tool for developing CT could be connected with already infused and separate criteria for CT. By choosing and orienting to one of the strands implicates the unconscious or inherited using assessment as a tool.

Moreover, it is interesting that reflection was mentioned together with assessment as a method which helps for self-reflection which in literature is given as metacognitive skills (Moon, 2008). While reflection could be used as separate and one of the effective ways for developing CT skills (Moon, 2008). One of the participants shared the idea about use of reflection at the end of a long-term project. During providing conceptualization for CT reflection was mentioned as a part of CT but in discussion about pedagogy only some

participants noted about reflection. Does this mean that reflection is underestimated by participants?

In conclusion, participants connected activities and strategies with assessment which is stated as an important notion in previous studies. Most activities provided by participants of this study are the same in literature but it was noted the use of differentiation and adaptation according to the abilities of students. However, participants of this study highly focused on group activities, writing and source evaluation while there are other lists of strategies for developing CT such as the use of reflection and assessment as a tool for promotion of CT.

Conclusion

The purpose of this study was to explore the experiences of teachers related to the use of critical thinking (CT) and their pedagogical experiences. The following questions were posed at the beginning of the study:

There were two main research questions guiding this thesis:

1.   What is the conceptualization of critical thinking for Humanities teachers in one of the NIS schools with an IB programme?

2.   What are the pedagogical practices employed by Humanities teachers for middle and diploma year programmes to develop critical thinking skills of students in one of the NIS schools with an IB programme?

The findings suggest the following answers to these research questions.

RQ1. What is the conceptualization of critical thinking for Humanities teachers in one of the NIS schools with an IB programme? The importance of CT is highlighted by all participants of this study but in different scope. There were teachers who connected with their teaching subject as a significant and required component. Those who define CT as greatly applicable and useful for personal and state purposes. The familiarity

could be divided into periods before NIS IB and within the NIS IB. On a current time as

experienced teachers from NIS school with the IB programme all participants are familiar

with CT and provided extended and insightful ideas about CT. However, there were group

teachers who stated that before NIS IB they did not have learning and teaching experience

with CT that is why CT could be defined as a new phenomenon within the education

system of Kazakhstan. They compared the Soviet and post-Soviet education system of

Kazakhstan with the IB programme in NIS. By comparing they provided more insight to

the related notions of CT such as learner-centered education, assessment system, teacher

and student position, approaches of learning and learning environment.

However, there were other groups who were familiar with CT before NIS IB. There

are two groups: the first one teacher with Soviet learning and teaching background and the

second one those who recently finished university and have two or three years of teaching

experience. The first one refuted the absence of CT before NIS and asserted about

existence under different names which reveals ambivalence on the view about novelty of

CT. The second group of participants stated that familiarity with CT and application of CT

in the teaching process are given less chalengable in comparison with those who identify

CT as a novelty.

Teachers who reported that CT is a new phenomenon and its related notions were

chellangable during implementation which was connected with contextual and cultural

realities. However, due to school support and collaborative working among teachers most

participants coped with those difficulties with implementing CT. Additionally, the IB

programme itself intrinsically and extrinsically drives to the encouragement of CT with its

own teaching and learning style, great focus on approaches to learning and with separate

criteria assessment for CT within Humanities department.

Even while providing the conceptualization of CT some participants directly

connected with criteria assessment mentioning about developing different perspectives,

arguments, analysing and evaluating sources. Additionally, some participants provide more

lists of skills such as questioning, making inference, connecting received knowledge with

real life situations, rational thinking, independent thinking and working, problem-solving

skills, reflecting, synthesizing, interpreting. Only some of participants show the connection

with disposition (truth-seeking) and under different terminology and explanation.

However, there were no connections with dispositions during providing conceptualization

of CT; it was told more during discussion about pedagogical practices.

Overall, most participants define CT as a list of skills and commonly mentioned skills as

recognizing different perspectives, creating arguments, analysing, evaluating, finding the

connection among ideas, making inference and connecting with real life situations.

RQ2. What are the pedagogical practices employed by Humanities teachers

for middle and diploma year programmes to develop critical thinking skills of

students in one of the NIS schools with an IB programme? The participants provided

general principles which are identified during their teaching experience. The first thing is

that participants mentioned it is advantageous when CT is already infused into teaching

subjects and exclusion on direct explanation of CT could be for new comer students. The

second one is creating an active and collaborative learning environment where students

develop dispositions. However, there were teachers who pointed that students should

possess dispositions. There are uncertainties on obtainment of CT dispositions which

require further exploration. The third one is learning the emotional and psychological

atmosphere for promotion of CT should focus essentially on the teacher role as a facilitator

of the learning process where students naturally share their ideas. However, there were

some discrepancies on avoidance of controversial topics and limitations paper works for

freely students movement outside. The fourth one is about the physical environment which includes furnishing and the use of ICT. In both cases there were controversial ideas. One part of participants appropriateness of learning space for developing CT and another part define the classroom structure as standardized. For the use of ICT most participants define it highly helpful while one of the participants said about possibility of developing CT without ICT. Moreover, most of participants highlighted the teacher knowledge as a fundamental for developing CT of students that is why teacher experience as a student and his epistemological beliefs is significant for teaching CT. For the school support on professional development of teachers, most participants stated about effectiveness of the IB programme courses in English languages especially within teaching discipline. Overall, listed principles by participants were in line with literature and they provided more insight.

Activities and exercises provided by participants were questioning, group work, list of specific activities, writing, assessment as a tool and reflection, and source evaluation. The main thing of this part that teacher collaboratively develop or adapt different strategies by taking into consideration the students' abilities. Questioning, writing and source evaluation strategies were mentioned as commonly used one because of connection with the final examinations in higher school (DP). Moreover, all strategies are taught in gradual stages which allow to reach the higher levels step by step. Another finding that at the beginning in lower grades activities, techniques and exercises explicitly are taught and explained by teachers. Participants pointed about use of strategies which create challengeable and inquiry learning environment.

Implications

There are multiple implications of this study for school, for teachers with similar context and requirements, for educational organizations and for policy makers. School administrators also enhance the promotion a of critical thinking by providing more time for

planning and reducing teachers' paperwork, permission to teach a wider range of topics (e.g., about homosexuality, religion, prostitution etc.) and reducing time spent for paper works to save time for activities and exercises which require outside exploration from students.

Pedagogic universities and colleges could revise their curricula in accordance with the requirements which are in the new Standards of Education. It will be a great contribution to the preparation of the young teachers to the effective implementation of new teaching and learning notions. There were participants who connected their university experience with the pedagogy of CT. They shared some ideas about the impact of their learning and teaching process on their teaching experience.

Policy makers also could revise or develop new in-service training courses for teachers not only in face-to-face mode but also in online platforms to address the fact that most of the participants highlighted efficacy of other online courses (e.g., the IB programme courses on English language) and considered as timesaving. Moreover, by taking into consideration the situation with COVID-19 it would be effective to make courses online or to ask the NIS schools to share their pedagogical experience with concrete examples based on their own experience.

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Appendices

Appendix A – Overview of Research for Principal

INFORMATION ABOUT RESEARCHER		
1	Student Name	Aigerim Kassembekova
2	University	Nazarbayev University in a Master's Degree program in Educational Leadership, M.Sc. in Educational Leadership: School
3	Email	aigerim.kassembekova@nu.edu.kz
4	Phone number	8 701 594 2363
INFORMATION ABOUT RESEARCH STUDY		
1	Title	"Critical thinking in Kazakhstan: Exploring conceptualization and commonly adopted practices of teachers in the Department of Humanities"
2	Purpose	The purpose of the study to explore Kazakhstani teachers` conceptualization of CT and commonly adopted practices to develop CT in order to understand their infusion experience within country context and realities.
3	Duration	December 2019
4	Sampling	12 teachers Department of Humanities English speaking teachers Kazakhstani resident teachers
5	Research instruments	Curriculum study (teacher's option); Face-to-face, 30 minutes interview (teacher's option - time, location)
Confidentiality of participant names and the school are preserved and pseudonyms will be used for all research reports. Additional details will be provided for teacher consent to individual participants.		
INDEPENDENT CONTACT		
1	If you have questions about the research, please contact	NUGSE Research Committee	Thesis Supervisor Dr. Anna CohenMiller
2	Phone	+7 7172 709359	Work: +7 (7172) 70 49 57 | Mobile: +7 (701) 109 0392
3	Email	gse_researchcommittee@nu.edu.kz	anna.cohenmiller@nu.edu.kz

Appendix B – Recruitment Letter
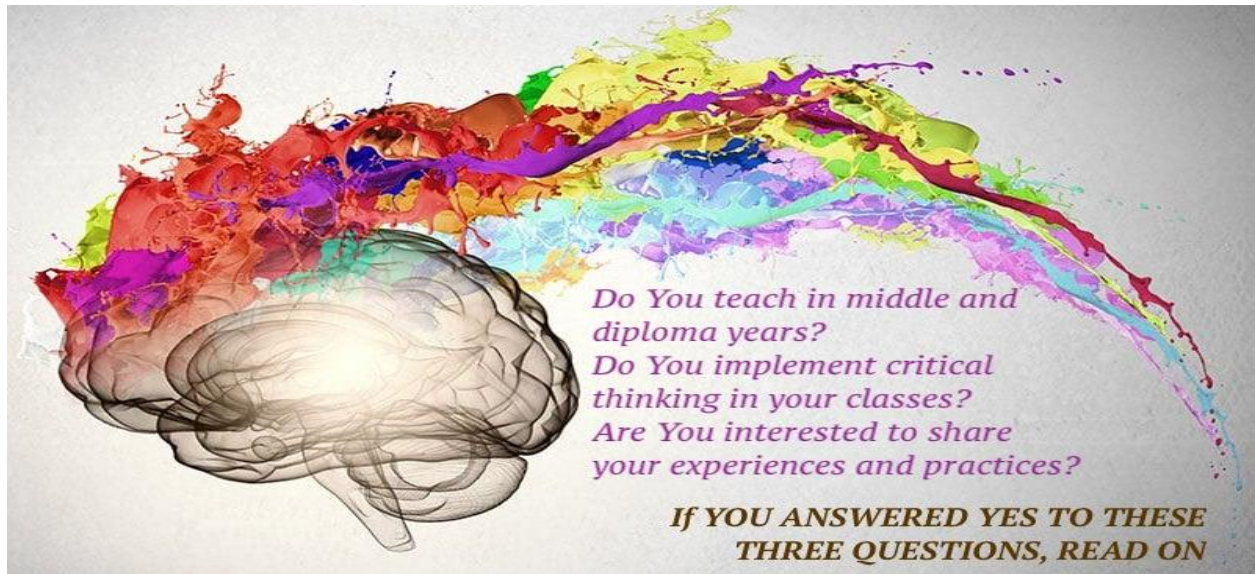
Dear colleagues,

I am writing to inform you about the opportunity to participate in the research, conducted by Aigerim Kassembekova, a master degree student of Graduate School of Education of Nazarbayev University. She is planning to conduct a research titled "Exploring conceptualization and commonly adopted practices of teachers in the Department of Humanities." Within the frame of this research, she needs to recruit 12 English speaking teachers working in Middle and Diploma years programmes, Department of Humanities and Kazakhstani residents.

The purpose of the research is to explore teachers' conceptualization about CT and commonly adopted practices to improve CT of students. Your participation is voluntary, the participants will be invited in face-to-face interview which will take about 30 minutes. Before the interview with your permission and arrangement there will be curriculum analysis to support interview with more details. If you are interested in participation in this research, please send an email to aigerim.kassembekova@nu.edu.kz with the following information.

1. *your gender, year of study, major, university;*
2. *the numbers of years you are working in this school or with new/updated curriculum;*
3. *information of your birth country*

The researcher will provide full confidentiality; your participation will not affect your work.

If you have questions regarding the research, please contact with Aigerim via email to aigerim.kassembekova@nu.edu.kz or phone number 87015942363.

Best regards, Elvira Rakhmetova

Appendix C - Interview Protocol (for Semi-Structured Interview)

Title:

Date: Place: Time:

Interviewee:

Position of Interviewee:

[After introducing myself, thank the participant for agreement to be interviewed, tell the participant about (a) the purpose of the study, (b) the measures assuring the confidentiality of the interviewee (the name of the participant and other people mentioned in his\her answers will not be revealed), and (c) the approximate time for the interview.]

[Ask the interviewee to read carefully and sign the consent form.] [Ask the interviewee's permission to use the tape recorder.]

[Test a tape recorder.]

Guiding questions for interview:

1.   Can you tell me a bit about your current position?

2.   Can you explain what critical thinking means to you?

3.   In general, what teaching and learning elements or principles do you consider as

significant or effective to develop students' critical thinking from your experience?

4.   What kinds of activities do you do in your classroom to *develop* or *facilitate* critical

thinking?

5.   What training courses or programs could help teachers to participate in creating

effective classroom practices to develop CT ?

6.   When you involve students in critical thinking, do you find any difficulty (school

facilities, parents, students, material, equipment, time, students' interest, political issues,

teaching language)?

7.   What kind of support could school administration provide in order to promote

developing CT?

Appendix D – Consent Form

I, _____

_____

, agree to take part in a study on exploring Department of Humanities teachers'

perspectives on conceptualization of critical thinking (CT) and commonly used practices

for developing CT of students. curriculum of my subject from September 2019 to January

2020 will be analyzed

I understand that, as a participant in the study, curriculum of my subject from September

2019 to January 2020 will be analyzed and I will be interviewed one time for about thirty

minutes. I understand that the interview(s) will be conducted in a time and place

convenient for me. I understand that an interview will be tape-recorded with my consent. I

understand that interview questions will be directed to the study and are not about

evaluation.

RISKS AND BENEFITS: I understand that there are minimal potential risks associated

with this study since I will not be asked any sensitive questions and I will not be identified

by my name in the study, nor will my school be identified. However, I understand that

there will be a possibility I might be identified by people who work closely with me due to

the small number of participants or that I might feel discomfort. I understand that the data

will not be available to the administration of my school and will not be used to evaluate my

performance as part of any school or system evaluation.

I understand that I will have access to all raw data collected about me. I also understand

that all the data collected during the study will be secured in a locked file and that only

principal researcher and her supervisor will have access to the primary data. I understand

that all data will be destroyed once the researcher has successfully completed all

requirements of her Master's program and submitted her thesis.

I understand that while I may not benefit directly from the study, the information gained

may assist both researchers and educational professionals to better understand teachers

conceptualization of CT and commonly used classroom practices for developing CT of

students. Moreover, it will be beneficial for the school to support teachers with strategies

for promoting CT. I understand that if I wish a summary of the findings of the study will

be sent to me, and that I could obtain a copy of the thesis in full.

IMPLEMENTATION OF CRITICAL THINKING PARTICIPANT'S RIGHTS: I

understand that my participation is voluntary and that I may withdraw at any time I wish. I

understand that no evaluative judgment will be made about me if I choose to withdraw

from the study.

I also understand that I will be free to raise questions or concerns with the principal

researcher or her supervisor throughout the study, and that I may refuse to answer any of

the questions during the interview.

I understand that the researcher will record the interview to ensure that no data will be lost.

I understand that the results of the study will be used for scholarly purposes only.

CONTACT INFORMATION:

I understand that if I have any questions, concerns or complaints about this research, its

procedures, risks and benefits, I may contact:

- the principal researcher of this study: Aigerim Kassembekova,

aigerim.kassembekova@nu.edu.kz, phone number: +7 (701)5942363.

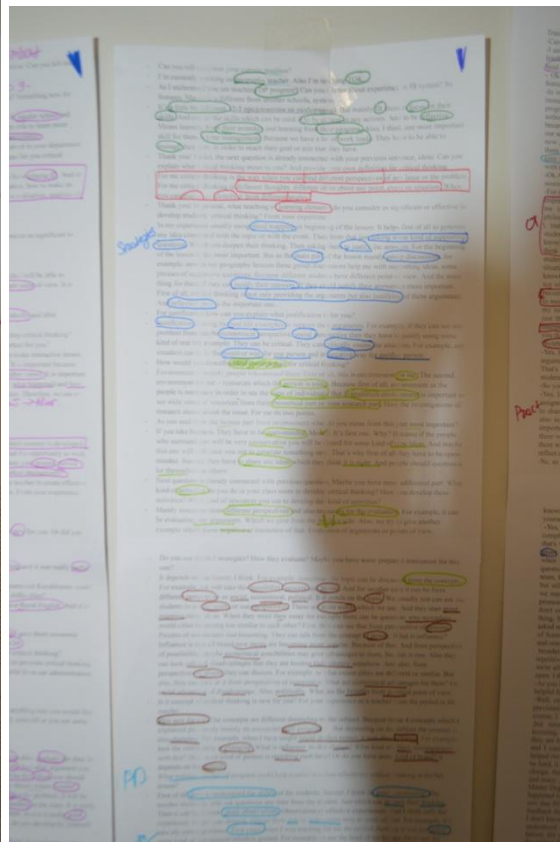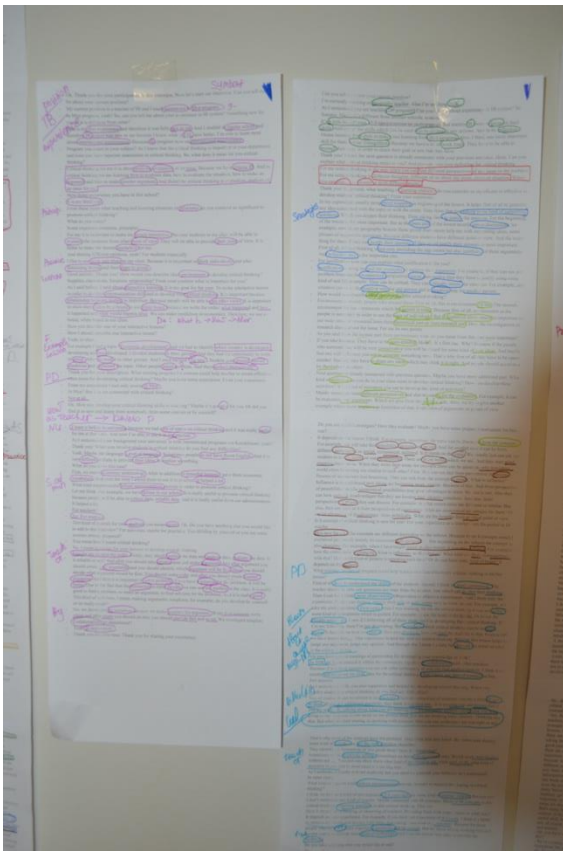- the Master's Thesis Supervisor for this work: Dr. Anna CohenMiller,

anna.cohenmiller@nu.edu.kz, phone + 7 +7 (701) 109 0392;

- the NUGSE Research Committee if I wish to speak to someone independent of the

research team at gse_researchcommittee@nu.edu.kz, +7 7172 709359.

**I have read and understood the conditions under which I will participate in this study

and give my consent to be a participant**.

Signature: _____ **Date:** _____

Appendix E - Coding

Appendix E - Categories

Appendix E - Excel Table for Whole Coding

The lower, more legible portion of the spreadsheet reads:

RQ	IQ	Themes	Categories(sub-themes)	codes	Linara	Gulim	Farisa
	Can you explain what critical thinking means to you? What are the skills related to critical thinking? What is your definition of critical thinking? Is this concept new for you?		philosophical psychological educational mixed approaches skills/abilities dispositions	argument perspectives analysis rational logic connection thinking outside Questioning application compare objective critique TOK questions change different (ideas, angle) discuss combin skills interpretation independently evaluation argument – counter searcher reflection not 100 % in school individual doubting true or not argue positive pessimistic expand negative positive important strengths limitation better develop info source clear theory practice life issue situation criteria D Data position way opinion event person sides one book T about t knowledge factual & debatable problem point solution relation scrutinize express ability thinking experience see lower than synthesizing	The critical thinking in our school has 4 strength. We need to develop student's skills how to do the arguments, how to provide the different perspectives, how to do the source analysis for different sources.	For me critical thinking is to think logically, to think rationally and to think clearly. So, it means the person or students be able to find the connection between two ideas and come to any kind of solution that is appropriate for him.	And critical thinking is when you are thinking where are you going and when you know where are going and for what you are going. And this kind of things if you are studying you are thinking outside of the things that you have. Why do I need it? For what this is necessary? How I'm going to apply this? Why do I need to apply this? Questioning yourself about, why, how, for what and this kind of things and also this is also of course implementation for the things that you have, the knowledge of you real life. So, to compare this is from the theory and the practice and this kind of implication of your ideas of the knowledge. And another thing is to think how this might be implemented in your own life. How you can implement these things like theories or other things and other stuff in your own life
		Conceptualization of CT	Final		skills - argument, perspectives, source analysis	Logic, rationality, connection between ideas, solution	thinking outside, questioning, aplication in real life, in your own life

Appendix F Interview transcription

<div align="center">

Interview transcription with Ermek

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Q – question
A – answer

Q: Can you tell me a bit about your current position?
A: I am a teacher of History, specifically World History. For about eight years I work in Nazarbayev Intellectual School. And I teach also theory of knowledge. In addition to the all of that I'm also the head of the department, and the supervisor in many extracurricular and curricular activities.

Q: Ok. So, can you tell me about your experience in IB system? Maybe this program has some features different from other programs? What do they look like?
A: In my own experience IB was the first pedagogical experience, and I am lucky to be involved immediately from the scratch, from the beginning, from the start. And we've done authorization program first of all for Diploma Program. We started that in 2011-2012. And then after we've got authorization for Diploma Program, we started to implement the MYP equipment, and also, we became full IB program without MYP, but still I think they are 2 major parts of IB implemented in our school. And so, as I said I work in the system for about 8 years. And it is not a nobility for me now, of course. IB is not solid. It is always changing. It is always developing. And every five years there are new guides, innovations, performs in IB that what I like about IB experience. But still the core values and the core mission of IB are there. And I think I can share these ideas with myself with my own teaching experience.

Q: As I know your department has special focus on critical thinking, even you have separate assessment. Now let's turn to critical thinking. Can you explain what critical thinking means to you?
A: -For me first of all it is the combination of skills, first of all it is rationalism is one of the important values in how we acquire knowledge. And that is why rationalism, thinking rationally for me is equal to critical thinking. Yes, rational thinking, because starting from the ancient philosophers, logic and rationalism were the ways how we could separate science from non-science, truth from non- truth. And I think that what we strive here to teach in the school to teach the students how to make clear differences. knowledge and irrelevant things or stuff. I don't know. And for me it is also the ability of students to think not only rationally but also independently, because here in the school in the safe environment students are welcomed to think, but sometimes, I said only about my school, but in many other situations, in the majority of situations, the role of the old school was just to deliver the knowledge, like to deliver it from one mind, how to say, or one thought to other. And I think that is not what critical thinking is about. Because critical thinking is about how we teach our students to become more independent learners, and when they have the skills in order to solve more from easier to more complex issues or goals, or any situations. That what, I think, critical thinking is, and in my subject it is important as well, because when students analyse, we expect them to provide not just the review or like review of different arguments, but we also ask them to tell their own interpretation of the events, so don't think about what historians think about this, think about what you think about this.