

**Multilingual Student Agency in one CLIL School: Evidence from Post-Soviet
Kazakhstan**

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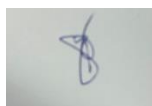
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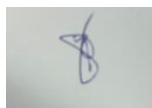


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Abstract

Multilingual Student Agency in one CLIL School: Evidence from Post-Soviet Kazakhstan

This qualitative study examines the challenges faced by secondary school students in Kazakhstan in Content and Language Integrated Learning (CLIL) classrooms where STEM (science, technology, engineering and mathematics) courses are taught in English. With a particular focus on students from the leading CLIL institution in Kazakhstan, Bilim Innovative Lyceum (BIL), the study explores how students cope with emotional and intellectual challenges by using agency to move beyond them. The study used a qualitative multiple case study approach following a grounded theory design; the research involved semi-structured interviews and classroom observation with 13 students. The results show that in addition to academic challenges such as language adaptation, vocabulary acquisition, and transition from Kazakh/Russian to English their learning process is further complicated by emotional challenges such as language anxiety, fear of criticism, peer comparison, and test-related stress. Despite these challenges, students exercise their agency and demonstrate resilience, using a variety of strategies such as organizing their own learning, using digital resources (ChatGPT, YouTube, Duolingo), and structured study of textbooks helps ensure comprehension. Teacher assistance and peer cooperation are fundamental instruments for academic achievement. Over time, many students become more confident, some even select English over their mother tongue for STEM degrees because of the long-term effects. The research reveals how in a CLIL setting students actively create their own learning process and overcome linguistic and cognitive obstacles. These real-world implications for CLIL practitioners and policymakers in Kazakhstan and such environments help contribute to the broader conversation about multilingual education, understanding students' adaptive methods

helps teachers create more inspiring classrooms that promote topic mastery as well as linguistic competence.

Keywords: CLIL, STEM, multilingual, language adaptation, Language Learning Strategies, Academic challenges, self-regulated learning

Аңдатпа

CLIL мектептеріндегі көптілді студенттер агенттігі:

посткеңестік Қазақстандағы дәлелдер

Бұл сапалы зерттеуде Қазақстандағы орта мектеп оқушыларының пән және тіл бойынша интеграцияланған оқыту (CLIL) сыныптарында кездесетін қиындықтары қарастырылады, онда STEM (жаратылыстану ғылымдары, технология, инженерия және математика) курстары ағылшын тілінде оқытылады. Зерттеу Қазақстандағы жетекші CLIL мекемесі Bilim (BIL) инновациялық лицейінің оқушыларына ерекше назар аударады және оқушылардың эмоционалды және интеллектуалдық қиындықтарды жеңу үшін өз еркіндіктерін қалай пайдаланатынын зерттейді. Зерттеу бірнеше мысалдарға негізделген әдісті және теориялық негізделген дизайнды қолданды; зерттеуге 13 оқушымен жартылай құрылымдалған сұхбаттар және сыныптағы бақылаулар енгізілді. Нәтижелер академиялық қиындықтардан басқа, мысалы, тілге бейімделу, сөздік қорды меңгеру және қазақ/орыс тілдерінен ағылшын тіліне ауысу сияқты, оқу процесі эмоционалды қиындықтармен, соның ішінде тілдік мазасыздық, сыннан қорқу, сыныптастарымен салыстыру және тестке байланысты стресс сияқты мәселелермен одан әрі күрделенетінін көрсетеді. Осы қиындықтарға қарамастан, оқушылар өз еркіндіктерін көрсетеді және әртүрлі стратегияларды қолдана отырып, төзімділік танытады, мысалы, өз оқуларын ұйымдастыру, цифрлық ресурстарды (ChatGPT, YouTube, Duolingo) пайдалану, ал оқулықтарды құрылымды түрде оқу түсінікті қамтамасыз етуге көмектеседі. Мұғалімнің қолдауы және сыныптастырымен ынтымақтастық академиялық жетістіктер үшін негізгі құралдар болып табылады. Уақыт өте келе көптеген оқушылар өздеріне сенімді бола түседі, кейбіреулері ұзақ мерзімді әсерлерге байланысты STEM дәрежесін алу үшін ана тілінен гөрі ағылшын тілін таңдайды. Зерттеу CLIL ортасында оқушылардың өз оқу процесін белсенді түрде

қалыптастыратынын және тілдік және когнитивтік кедергілерді қалай жеңетінін көрсетеді. Бұл нақты нәтижелер Қазақстандағы және ұқсас орталардағы CLIL практиктері мен саясаткерлер үшін көптілді білім беру туралы кеңірек диалогқа үлес қосады. Оқушылардың бейімделу әдістерін түсіну мұғалімдерге пәнді меңгеруге және тілдік құзыреттілікті дамытуға ықпал ететін шабыттандыратын сыныптар құруға көмектеседі.

Аннотация

Многоязычное студенческое агентство в школах CLIL: данные из постсоветского Казахстана

В этом качественном исследовании рассматриваются проблемы, с которыми сталкиваются ученики средних школ в Казахстане в классах интегрированного обучения по предмету и языку (CLIL), где курсы STEM (естественные науки, технологии, инженерия и математика) преподаются на английском языке. Особое внимание уделяется ученикам ведущего учреждения CLIL в Казахстане, инновационного лицея Bilim (BIL), в исследовании изучается, как ученики справляются с эмоциональными и интеллектуальными проблемами, используя свободу действий для их преодоления. В исследовании использовался подход с несколькими примерами, следуя обоснованному теоретическому дизайну; исследование включало полуструктурированные интервью с 13 учениками и наблюдение за классом. Результаты показывают, что в дополнение к академическим проблемам, таким как языковая адаптация, приобретение словарного запаса и переход с казахского/русского на английский, их процесс обучения еще больше осложняется эмоциональными проблемами, такими как языковая тревожность, страх критики, сравнение со сверстниками и стресс, связанный с тестами. Несмотря на эти проблемы, ученики проявляют свою свободу действий и демонстрируют устойчивость, используя различные стратегии, такие как организация собственного обучения, использование цифровых ресурсов (ChatGPT, YouTube, Duolingo), а структурированное изучение учебников помогает обеспечить понимание. Помощь учителя и сотрудничество со сверстниками являются основополагающими инструментами для академических достижений. Со временем многие студенты становятся более уверенными, некоторые даже выбирают английский вместо родного языка для получения степени STEM из-за

долгосрочных эффектов. Исследование показывает, как в среде CLIL студенты активно создают свой собственный процесс обучения и преодолевают языковые и когнитивные препятствия. Эти реальные последствия для практиков CLIL и политиков в Казахстане и подобных средах помогают внести вклад в более широкий разговор о многоязычном образовании, понимание адаптивных методов студентов помогает учителям создавать более вдохновляющие классы, которые способствуют освоению темы, а также языковой компетенции.

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Chapter 1: Introduction

This chapter introduces the study that investigates the challenges that students confront in CLIL (Content and Language Integrated Learning) contexts, and their agency and strategies enacted to address these challenges, particularly in STEM (Science, Technology, Engineering, and Mathematics) topics taught in English, in Kazakhstan. The chapter begins with relevant background information including a brief history of events that led to the implementation of CLIL in the Kazakhstani educational system. The research problem and questions, the purpose and significance of the study are also presented later in the chapter.

CLIL is an umbrella term that refers to the European approach to bilingual education, specifically focusing on using an additional language to learn and teach both content and language (Coyle et al., 2010; García et al., 2009). Furthermore, based on this definition, two significant attributes of CLIL can be discerned. The first notable characteristic is the incorporation of an “additional language.” Many scholars often link the additional language in CLIL solely with the teaching and acquisition of a foreign language, commonly English (Marsh, 2002). However, the Eurydice, (2006) study “CLIL in Schools in Europe” states that CLIL has two objectives: promoting the local language and enhancing the teaching and acquisition of foreign languages.

A second distinctive feature of CLIL is its emphasis on both language and content, which aligns well with the multilingual educational objective of imparting knowledge in the target language, as articulated by Fortanet-Gomez (2013). Eurydice (2006) highlights that the simultaneous emphasis on language and content results in the emergence of a distinct teaching methodology, where the non-linguistic curriculum is not only taught in the foreign language but also facilitated via it. Although many distinct characteristics have emerged in the teaching and learning of foreign languages with the introduction of CLIL,

Coyle et al. (2010) contend that CLIL is not a novel model of language or subject instruction. Instead, they propose that it is a creative integration of both, indicating that every education system possesses all the essential fundamental components for implementing CLIL, albeit in different ways.

Students' agency has become a crucial concept in education, serving as both an objective and a method to direct learners and assist them in navigating unfamiliar situations (OECD, 2018). It encompasses employability skills (Griffiths et al., 2018), collaboration skills (Bell, 2010), digital competencies (Ilomäki et al., 2016), and a capacity for lifelong learning (Biesta & Tedder, 2007). The concept of human agency has been extensively examined in scholarly works. One viewpoint, the social-cognitive approach, considers agency as the intermediary element connecting intentionality, self-reflection, and self-efficacy (Bandura, 2006). Agency may be defined as the ability to persevere and make decisions, including determining how to complete tasks and seize opportunities, especially in the face of challenges (Bandura, 2006). Research indicates that self-efficacy impacts motivation and cognition by influencing students' interest in tasks, perseverance in doing tasks, objectives, choices, and use of cognitive, metacognitive, and self-regulatory techniques (Bandura, 2001; Zimmerman, 1995). Another viewpoint on agency is a sociocultural approach that conceptualizes agency as the potential to act mediated by society (Ahearn, 2001).

Background Information

Following the fall of the Soviet Union in 1991, Kazakhstan, the last Soviet republic to formally proclaim its independence, has seen a substantial shift in language policy. Despite the historical multilingualism of the nation (Smagulova, 2006), the Kazakh language did not take precedence before independence as Russian was the dominant language in all components of public life (Kakenov, 2017). The Republic of Kazakhstan

now attaches high importance to multilingualism in modern society. Nursultan Nazarbayev, the inaugural President of Kazakhstan, stressed the need of establishing Kazakhstan as a globally acknowledged highly educated country, with a population that is fluent in three languages: Kazakh (the official language), Russian for international communication, and English for effective integration into the global economy (Amangeldina et al., 2014, p. 3).

Despite Kazakh and Russian being the now dominant languages in the country, government officials have actively prioritized the introduction of English proficiency in the educational system through the implementation of the “Trinity of Languages Program” aimed at enhancing the skills of a new generation to compete more effectively on the global stage (Neuendorf, 2016). In 2007, the Kazakhstani Ministry of Education and Science initiated the implementation of multilingual education (Kulsariyeva et al., 2017), which was first implemented in three pilot bases, namely 33 “Daryn” pilot schools, 20 NIS (Nazarbayev Intellectual Schools), and 30 BIL (Bilim Innovation Lyceums) of all educational levels. By implementing three languages as instructional languages, both NIS and BIL adhere to the robust paradigm of trilingual education. The educational institutions offer study programs in Kazakh, Russian, and English, focusing on STEM disciplines taught in English (Kulsariyeva et al., 2017 as cited in Aubakirova et al., 2019; Mindetbay, 2021; Zhussipbek, 2019).

Trilingual Education in Bilim-Innovation Lyceums (BILs)

Among the three educational institutions mentioned above, Bilim-Innovation Lyceums are prestigious schools in Kazakhstan which specifically cater to exceptionally talented students. The first three BILs (formerly known as Kazakh-Turkish Lyceums) were founded under the auspices of the Kazakh-Turkish Education Foundation, in Turkistan, Kokshetau, and Almaty in 1992 (Yakavets, 2014). At present, there are a total of thirty-

four residential Institutions of Learning (BILs) functioning nationwide. These BILs were initially designed as residential schools catering exclusively to male students between the ages of 13 and 17 (grades 7 to 11). However, currently, there are twenty-six BILs in total offering gender-segregated education, with twenty schools for boys and six schools for females (Hajar et al., 2023). Each of these institutions is financially supported and overseen by both the Ministry of Education and Science and the Bilim-Innovation International Social Foundation.

For the last four years, the CLIL technique has been used at the BIL schools (Ilyassova, 2022). Nevertheless, the implementation of CLIL in the Kazakh educational system has not been thoroughly examined, although it is seen as a novel methodology in the nation. Despite being often considered the fundamental theory of trilingual education in the nation, CLIL was not included in significant official education policy papers (Karabassova, 2018). However, state schools have been using this approach for extracurricular classes. At this point, the outcomes have been favorable, and the implementation of CLIL in the Kazakh educational system has had a useful influence (Huertas-Abril & Shashken, 2021). The study conducted by Vitchenko (2017) confirmed this finding while examining the application of CLIL in the Nazarbayev Intellectual Schools. These schools are intended to serve as an experimental platform for the advancement and execution of contemporary learning programming models in the national education system.

At BILs, the curriculum includes instruction in two primary languages: scientific topics in English and social sciences in Kazakh. According to Karabassova (2020), about half of the teaching from Grade 7 onwards is conducted in English, while the other portion is in Kazakh. The Bilim Innovation Lyceums now provide classes in Kazakh, Russian, and English languages (Mindetbay, 2021; Zhussipbek, 2019). Turkish is taught as an

independent language discipline. Another notable characteristic of the Bilim Innovative Lyceums is the incorporation of the natural-mathematical cycle curriculum topics and interdisciplinary integration, along with the implementation of advanced educational programs, the use of cutting-edge technology, and innovative methodologies such as the Flipped Classroom. Additionally, BILs use a range of Project-Based Learning (PBL) (Koshegulova & Mindetbay, 2020) and CLIL educational approaches (Ilyasova, 2022) to help students acquire 21st century skills.

Research Problem

The establishment of Content and Language Integrated Learning (CLIL) in Kazakhstan is a component of a wider educational restructuring that seeks to improve students' ability to speak many languages, especially English, while also imparting subject-specific knowledge in fields like STEM (Dearden, 2014). As CLIL programs proliferate nationwide, it becomes more and more crucial to comprehend the influences that drive students to participate in these programs, the obstacles they face, and how they act agentively in overcoming these obstacles.

Prior studies on CLIL extensively highlight its advantages, such as enhanced language skills and comprehension of subject matter (Dalton-Puffer, 2011; Lasagabaster & Sierra, 2009; Lasagabaster, 2017), as well as disadvantages and the impact of CLIL adoption on student motivation (Arribas, 2016; Oxbrow, 2018). Nevertheless, there is limited data about how students experience CLIL, especially in multilingual environments such as Kazakhstan. In addition, whereas the written literature extensively covers the academic and linguistic difficulties associated with studying STEM courses in a non-native language (Mehisto et al., 2008), studies are scarce on students' subjective perceptions and reactions toward these difficulties.

Although the agency of teachers in Content and Language Integrated Learning (CLIL) has been extensively studied (Gruber & Mercer, 2022; Montgomery & DeCosta, 2024; Pappa et al., 2019) with a specific emphasis on how teachers manage the challenges of presenting material in a second language and adjusting their teaching methods, the notion of student agency has been relatively overlooked. Student agency refers to the capacity of students to exercise autonomy, make decisions, and influence their learning experiences (Bandura, 2006). This is especially important in multilingual environments where learners must achieve proficiency in both language and subject matter. This research aims to address these gaps by investigating three key aspects of the CLIL experience in Kazakhstan.

Purpose of the Study

The purpose of this study is to look at how students use their agency to navigate and overcome the challenges of studying STEM topics in a language other than their first. Furthermore, the research aims to focus on the strategies they use to manage and minimize challenges in their learning process. By concentrating on agency, this study hopes to give insights into how students exert control, make choices, and take initiative in their educational path, contributing to a better understanding of multilingual student experiences in CLIL contexts.

Research Questions

The following questions were examined in this study:

1. What challenges do Kazakh students face while learning STEM subjects in English through CLIL?
2. How do the students exercise their agency to deal with these challenges?

Significance of the Study

First, by offering empirical information from a distinct setting, the results of this study will enhance the expanding corpus of research on CLIL and multilingual education. An emphasis on student agency introduces a fresh aspect to CLIL research, which has traditionally focused on language acquisition and outcomes related to content learning. This research will enhance our comprehension of how students negotiate and impact their learning in multilingual settings, therefore refining the theoretical and practical debates on Content and Language Integrated Learning (CLIL). Second, this research advances the overarching objective of fostering student-centered learning by emphasizing the active participation of students in their educational experiences. Educational stakeholders may enhance student engagement, empowerment, and success in the challenging setting of CLIL by acknowledging and promoting student agency. Finally, the findings obtained from this study may provide valuable guidance to educational officials and curriculum designers in Kazakhstan and other multilingual environments. By comprehending the incentives, obstacles, and methods that students use to exert their agentic power, educational authorities may develop curricula that are more accommodating and adaptable to the requirements of multilingual learners.

Outline of the Thesis

The thesis contains six chapters: the introduction, the literature review, the methodology, the findings, the discussion and the conclusion. The first chapter introduces the study's focus on Content and Language Integrated Learning (CLIL) in Kazakhstan, outlining the research problem, purpose, questions, and significance. The second chapter critically reviews the literature on CLIL, multilingual education, and student agency. The third chapter describes the research methodology, including design, data collection,

analysis, and ethical considerations. The fourth chapter presents findings related to the challenges faced by students and their agentic responses. The fifth chapter discusses these findings in light of existing research. The sixth chapter concludes by addressing the research questions, noting limitations, and offering recommendations for stakeholders.

Chapter 2: Literature Review

The present study investigates the obstacles that students confront in CLIL contexts, and their agency and strategies enacted to address these challenges, particularly in STEM topics taught in English, in Kazakhstan. The review of the literature first defines the concept of agency and the model of CLIL. It concentrates on both Kazakhstani and international research studies that focus on CLIL. However, due to lack of studies primarily on student agency in the Kazakhstani context, the review of empirical research relies on both local and international studies for the following themes: agency and language learning strategies. The chapter concludes with a summary.

Definition of Agency

The complex definitions and components of human agency are predictably reflected in research on student agency. Although there is no universally accepted definition of the term (OECD, 2020), the literature generally agrees that student agency is a capacity based on beliefs and personal abilities that enable deliberate actions for learning, facilitated by the circumstances of the specific environment (Raffo & Roth, 2020; Schoon, 2018). Consequently, the theoretical concepts from Bandura's (2001) and Emirbayer and Mische's (1998) models of agency could be translated and implemented in an educational setting. Another prevalent observation in research on student agency was the power hierarchical relationship between students and educators. Redistributing power, voice, and choice from the teacher to the student, thereby allowing the student to have more agency, has been identified as a challenge that requires balancing and redefining the roles of both students and teachers (Charteris & Smardon, 2019; Cook-Sather, 2020). When instructors delegate more authority to students by being receptive to student leadership and input (Adie et al., 2018; Smith et al., 2016), providing relational support

(Martin et al., 2017; Monk et al., 2013), and supporting autonomy (Lingard et al., 2003; Martin, 2004), they promoted more chances for student agency to thrive.

There are three main categories of research on student agency: models of student agency (Knight et al., 2018; Raffo & Roth, 2020; Vaughn et al., 2020), studies that examine how student agency influences other variables (Anderson et al., 2019; Martin et al., 2017), and studies that examine how other factors influence student agency (Du et al., 2022; Jiang et al., 2022; Stolp et al., 2022; Vare, 2021). Each of these categories will be explored in the next three subsections of the chapter.

Factors that Enable and Constrain Student Agency

This section of the literature review will present studies that examined how various factors impacted student agency. Two qualitative studies analyzed the impact of institutions on students' agency (Flückiger et al., 2018; Mick, 2011) and found that students' agency is eroded as they go through the formal years of school due to bureaucratic curricular requirements, as pointed out by both Mick (2011) in Belgium and Flückiger et al (2018) in Australia. This comes under macro-structural influences on schools and educators (Raffo & Roth, 2020). Similarly, Charteris and Smardon (2019) looked at school-level influences on student agency. Interviews with administrators of elementary and senior schools in New Zealand provided the data for their research on the impact of creative classroom environments on students' sense of agency. Students at these progressive schools were able to have meaningful conversations with their instructors, which led to improvements in the school's curriculum, evaluation practices, and physical space that supported student learning. Martin (2016) also notes that student agency may be best fostered via two-way communication between students and teachers.

Other international studies on the influence of institutional and contextual variables on student agency are pertinent to my research on CLIL settings in Kazakhstan. Mick (2011) in Belgium and Flückiger et al. (2018) in Australia found that bureaucratic pressures, such as strict curricular systems, might diminish students' agency. This raises crucial questions regarding how such institutional limits may affect Kazakh students, particularly those pursuing STEM topics in English. CLIL programs present additional challenges, such as language barriers and cognitive load (Dalton-Puffer, 2011; Doiz et al., 2013), which may further limit students' ability to exercise agency. In contrast, as discussed by Charteris and Smardon (2019) in their study of school-level influences in New Zealand, innovative classroom settings and two-way communication between students and instructors may promote student agency by enabling students to influence curriculum and assessment methods (Charteris & Smardon, 2019; Martin, 2016). This shows that promoting conversation and flexibility in Kazakhstani CLIL courses may help students overcome the combined obstacle of learning in a foreign language.

However, unlike previous research conducted in English-speaking monolingual contexts, the Kazakhstani setting provides a unique multilingual environment in which the function of Kazakh, Russian, and English languages complicates how students exercise agency. While studies have investigated the influence of institutional limits on agency, few have focused on how multilingual education systems like Kazakhstan impact students' abilities to manage learning problems.

Teaching Methods that Contribute to Agency

There has been a limited but increasing amount of research on teaching methods that contribute to student agency. One common method of interest for STEM education researchers in promoting student agency is project-based learning (PBL). According to Bell, (2010) and Kokotsaki et al., (2016), project-based learning (PBL) is a teaching and

learning approach in which students work together to learn about a subject and address a real-world problem. This approach offers students choice, opportunity for cooperation, and the development of concrete skills to solve a problem significant to them (Bell, 2010; Blumfield et al., 1991; Revelle, 2019). Research has shown that project-based learning (PBL) helps students become more self-reflective and autonomous while having no negative effect on standardized test results (Bell, 2010; Darling-Hammond et al., 2020). Attard et al. (2021) found that PBL's student-centered, interactive design promotes student agency because students are prompted to think creatively and critically before taking action (Stolk & Harari, 2014). This exemplifies the goal-oriented components of student agency (Jiang et al., 2022, Revelle, 2019; Vare, 2021).

The element of choice in project-based learning (PBL) provides students with opportunities to act autonomously. Among other things, lessons using the project-based learning (PBL) approach might include instructors giving or supporting student options in areas such as the project's fundamental question, role allocations, problem-solving methodologies, and accessible resources (Blumfield et al., 1991). According to Nariman and Chrispeels (2016) when students are given more freedom and opportunity to express themselves in class, the teacher's function changes to that of a facilitator and guide. Students are given more agency when given choices, which means that teachers are transferring part of their authority to them (Vare, 2021). The research on project-based learning (PBL) and its capacity to foster student agency is important to my study of student agency in CLIL settings in Kazakhstan. PBL, like CLIL, focuses on student-centered, real-world problem-solving, giving students choice and control in their learning processes (Bell, 2010; Kokotsaki et al., 2016). These elements— student choice, collaborative problem-solving, and instructor facilitation could be as important in CLIL classrooms, where students must acquire both subject matter and a second language (English). In

particular, the autonomy and reflection encouraged by PBL, as stated by Darling-Hammond et al. (2020) and Attard et al. (2021), may assist students in CLIL contexts in developing solutions for managing language issues while addressing demanding STEM topics. Furthermore, Nariman and Chrispeels (2016) highlight the teacher's role in facilitating student autonomy, which suggests a parallel in CLIL environments, where teachers must balance supporting language acquisition with content learning, allowing students to exercise agency by choosing their learning strategies. By investigating the obstacles faced by students in CLIL settings, my research will contribute to the discussion of how agency might be promoted in multilingual, content-driven learning contexts such as those in Kazakhstan.

Advantages and Disadvantages of Student Agency

Students feel more in control of their education when they have agency in their learning, and this may boost their motivation and active participation. This is supported by Ryan and Deci's (2000) Self-Determination Theory, which contends that autonomy is a major source of intrinsic motivation that improves learning results. Moreover, independent decision-making, critical thinking, and problem-solving are all encouraged by student agency. It creates an atmosphere in which students actively participate in their education and make decisions about it rather than only being passive consumers of knowledge (Fielding, 2001). This may be especially helpful in CLIL contexts, where students need to develop critical cognitive skills while navigating both language and subject problems (Coyle et al., 2010). Gaining agency also may result in a stronger feeling of accountability and control over one's education, which can carry over into life beyond school. According to Bandura's (1997) theory of self-efficacy, continuous personal development results from having faith in one's ability to influence the learning process (Bandura, 1997). Several studies highlight that student agency enhances learning performance and learning pleasure

(Blair, 2009; Crick et al., 2015; Rappa & Tang, 2017; Reeve & Tseng, 2011). However, Luo et al. (2019) found that the greatest student performance and assessment ratings were recorded during the in-class session with the least amount of student agency. This suggests that in this particular setting, there was less learner autonomy and more instructor presence. If the pre-class preparation was already self-regulated, the teacher-led in-class teaching may provide students with the much-needed framework and scaffolding for their learning inquiry (Raes & Schellens, 2016). This research supports the claim that the instructor's role remains significant in student-centered learning environments (Kim et al., 2014) and emphasizes the correlation between cognitive appearance and pedagogical presence (Shea & Bidjerano, 2009).

CLIL

CLIL (Content and Language Integrated Learning) is an umbrella term that refers to the European approach to bilingual education, specifically focusing on using an additional language to learn and teach both content and language (Coyle et al., 2010; García et al., 2009). Furthermore, based on this definition, two significant attributes of CLIL can be discerned. The first notable characteristic is the incorporation of an “additional language.” Many scholars often link the additional language in CLIL solely with the teaching and acquisition of a foreign language, commonly English (Marsh, 2002). Moreover, CLIL is an educational strategy that uses a second language to teach academic disciplines such as geography or mathematics (Coyle et al., 2010). Its primary goal is to improve students' language competence while they gain information and abilities in numerous academic fields (Mehisto et al., 2018).

By using the target language as the primary medium of instruction, CLIL classrooms enable students to engage with discipline-specific content and communicate successfully (Kewara & Prabjandee, 2018; Lasagabaster & Sierra, 2010; Lopriore, 2020).

CLIL may be content-driven (Villabona & Cenoz, 2022) or language-driven (Chumbay & Ochoa, 2020) based on educational context and aims. CLIL promotes authentic materials (Wolff, 2003), cooperative strategizing (Wilkinson, 2018), adaptable evaluation techniques and feedback (DeBoer & Leantjev, 2020), techniques for language support (Mahan, 2022) and cooperative strategizing (Wilkinson, 2018) instruction that is differentiated (Roiha, 2014). Research indicates that CLIL may enhance students' language, topic understanding, and cognitive abilities (Lasagabaster & Beloqui, 2015; Martín de Lama, 2015). By actively utilizing the language to understand and convey concepts related to their subject areas, CLIL students enhance their language proficiency (Dalton-Puffer, 2013). In addition, by using their target language knowledge in academic contexts, CLIL learners enhance their cognitive, critical thinking, and problem-solving skills (Harrop, 2012; Dalton-Puffer, 2013). The practical applicability of language learning in real-world situations has been shown to increase CLIL students' motivation and engagement. Ultimately, CLIL students develop international awareness and global perspectives through engagement with diverse subject matter across multiple language and cultural frameworks (Doiz et al., 2014). As a major part of European education policy (King, 2018) and a global phenomenon in bilingual education, CLIL is a method that fosters international cooperation and education.

A second distinctive feature of CLIL is its emphasis on both language and content, which aligns well with the multilingual educational objective of imparting knowledge in the target language, as articulated by Fortanet-Gomez (2013). The simultaneous emphasis on language and content results in the emergence of a distinct teaching methodology, where the non-linguistic curriculum is not only taught in the foreign language but also facilitated via it (Eurydice, 2006). Although many distinct characteristics have emerged in the teaching and learning of foreign languages with the introduction of CLIL, Coyle et al.

(2010) contend that CLIL is not a novel model of language or subject instruction. Instead, they propose that it is a creative integration of both, indicating that every education system possesses all the essential fundamental components for implementing CLIL, albeit in different ways.

CLIL in Kazakhstan

Some Asian countries, including China (Lo & Lin, 2015; Wei & Feng, 2015) and Kazakhstan (Karabassova, 2019, 2018; Satayev et al., 2022), are promoting CLIL as an educational approach, with government support. Kazakhstan is a pioneer in using CLIL as a teaching method for numerous courses in the post-Soviet area and continues to lead the way in Central Asia (Parra & Abdiyeva, 2021). After gaining independence from the USSR in 1991, there were significant changes and upheavals in education, particularly in teaching methods (Mahon & Murphy, 2019). Since then, the government has recognized the need for multilingualism in a globalized culture and encourages the use of English, Kazakh, and Russian in secondary schools (Satayev et al., 2022). As a result, Kazakhstan was the first nation in the Central Asian region to implement a strategy that prioritized trilingualism in education. This created the foundation for Kazakhstan's adoption of CLIL, which expanded throughout the period of trilingual education in schools from 2000 to 2019 (Karabassova, 2020). In 2006, trilingual instruction was implemented in a few pilot schools. Since then, a nationwide network of specialized educational institutions has been established to support this endeavor, including schools with trilingual teaching such as Bilim Innovation Lyceums, and Nazarbayev Intellectual Schools.

Student Experiences in CLIL settings in Kazakhstan

After discussing the general backdrop of CLIL and its implementation in Kazakhstan, it is critical to investigate how students study STEM courses in English in these

settings. Kazakhstan's specific linguistic and educational context presents students with unique obstacles, especially when it comes to understanding both topic and language.

Several studies investigated the effects of CLIL education on students and instructors alike. Concerning beneficial student outcomes, it was discovered that CLIL enhances student motivation, provides different task types, and integrates topic knowledge with language (Huertas-Abril & Shashken, 2021). Furthermore, students saw CLIL as an excellent way to improve language abilities and get interested in topics (Yesmuratova & Shayakhmetova, 2021). Likewise, participation in CLIL has been shown to boost student motivation, chances of success, and pedagogical abilities (Shabdenova, 2021). Moreover, in higher education, it was observed that students were more interested in learning via CLIL and that university students' grammar and listening abilities improved when a CLIL method was combined with formal language training (Nurdillayeva & Zhuman, 2021; Sataev et al., 2022).

However, students faced some challenges. These include the task's time-consuming nature and students' limited linguistic competency. Students often find it difficult to comprehend the material being taught in a second language, which may make it difficult for them to engage fully in class activities. Students may also lack confidence in their ability to participate if they feel self-conscious about making errors in front of their classmates (Em, 2021; Satayev et al., 2024; Shabdenova, 2021; Yesmuratova & Shayakhmetova, 2021). In addition, Karabassova (2009) found that CLIL programs lacked adequate classroom management, communication opportunities, and student participation.

Scholars have investigated more about teachers experiences and agency in CLIL settings the world over (Banegas, 2012; McDougald, 2023; Segura, 2023; Villabona & Cenoz, 2022; Yuan & Lo, 2023) and in Kazakhstan (Em, 2021; Golovchun et al., 2017;

Huertas-Abril & Shashken, 2021; Kakenov, 2017; Karabassova, 2022b; Karabassova & San Isidro, 2020; Maximova, 2020; Mehisto et al., 2022; Omarbekova, 2020; Shraiber & Ovinova, 2017; Shabdenova, 2021; Vitchenko, 2017). However, there is not much research that mainly focuses on student experiences and agency. Furthermore, according to Idrissova et al. (2015), there is a lack of comprehensive understanding of how subject issues are taught in classrooms using English, as well as educational research.

Implementing trilingual education may be impeded by disagreements and disputes as well as insufficient knowledge and educational research among significant stakeholders (Baitukenov, 2016). Many international studies recognize the importance of examining learners' perspectives since they play a crucial role in the field of education (Dalton-Puffer et al., 2009). This further highlights the need for the present study.

Language Learning Strategies

In this section, language learning strategies (LLS) and their definitions will be presented. This is relevant for this study because when students exercise their agency, particularly in CLIL settings they may use certain language learning strategies to learn content through second or foreign languages.

Wenden (1987) provided one of the clearest descriptions of learning strategies by describing it as “the various operations that learners use to make sense of their learning” (p. 7). Likewise, Oxford’s (1990) defines learning strategies as “specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and transferable to new situations” (p. 8). Moreover, every learning process therefore necessitates the adaptation of a strategy to accomplish the primary learning process (Hardan, 2013). Learning techniques are an essential component of both teaching and learning (O'Malley & Chamot, 1990). Consequently, lack of proper learning strategies is one of the reasons why many students are unable to learn because they are not taught or

evaluated in a manner that helps them meet their learning objectives (Sternberg, 1999). This led to the creation of the theory of successful intelligence to address this issue and support these students' successful learning (Sternberg, 1999). Referring to successful learning, the majority of research on learning techniques focuses on the concept of successful learners. Rubin's (1975) research on learning techniques focused on the methods of successful learners, claiming that once found, such strategies may be made accessible to less successful learners. Moreover, when students are engaged in a learning activity, they have multiple resources that they employ in various ways to complete or solve the assignment, which may be referred to as a learning strategy. This explanation may be too complex for some to grasp, thus it may be simpler to define learning strategy as learning skills, learning-to-learn abilities, thinking skills, problem-solving skills, or, in other words, the ways that learners use to consume, store, and retrieve information throughout the learning process. Learning strategies are not just relevant for learning languages but can be used to learn other subjects like mathematics, chemistry, and biology.

Language Learning Strategies

Since the early 1970s, language learning techniques have gained a great deal of attention due to their critical role in language acquisition. Numerous academics have provided varying definitions of language learning techniques, with an emphasis on how students handle the information they are given and the types of tactics they use. Many scholars have varied definitions of language learning techniques. An early description of language learning strategies was provided by Rigney (1978), who described them as the often deliberate actions or behaviors that language learners use to improve the gathering, storing, recalling, and applying of new knowledge. Regarding language acquisition techniques, Oxford et al. (1989) share the same concept as Rigney (1978). According to them, language learning techniques are used to improve and speed up language

acquisition. They stated that language learning strategies are defined as activities, behaviors, stages, or tactics, such as locating language partners for conversation or providing self-encouragement to address challenging language tasks, used by learners to improve their learning.

Taxonomy of LLS

A multitude of scholars have attempted to categorize LLS (Oxford, 1990; O'Malley et al., 1985; Wenden & Rubin, 1987, etc.). Nonetheless, these classifications exhibit several similarities.

The most renowned is Oxford's (1990) "taxonomy of language learning strategies." She categorized them into two primary classifications: direct and indirect LLS. She asserts that direct methods are intentionally used by the learner, whereas indirect tactics are utilized automatically by pupils. Within the initial group, she categorized three subgroups of LLS: memory strategies that facilitate information retention, cognitive strategies employed by learners to comprehend the learning process, and compensation strategies that assist students in overcoming language barriers that hinder communication. The second group included three distinct categories: metacognitive methods that enable learners to regulate their learning process, affective strategies about the emotional dimensions of learners, and social strategies used to improve communication in the foreign language. Another notable categorization is that proposed by O'Malley et al. (1985). However, they did not distinguish between direct and indirect tactics. They categorized LLS into three primary groups: cognitive strategies associated with particular learning activities, metacognitive strategies that assist students in planning and managing their learning processes, and socio-affective strategies that facilitate communication with others.

Local and International Studies on LLS

Recent international studies on language learning strategies (LLS) provide insight into student behavior. Tai and Zhao (2024) studied 1239 Hong Kong university students and found that students developed metacognitive and social strategies (e.g., self-regulation, peer collaboration) in English. Similarly, Habok et al. (2022) studied 1,159 Hungarian secondary school students and found that their cognitive, metacognitive, and social strategies, as well as English language acquisition, improved. These insights, however, need to be considered within the unique trilingual (Kazakh, Russian, English) CLIL environment in Kazakhstan. In higher educational institutions in Kazakhstan, Kuttubayeva (2022) found that the use of digital tools by students and peer support were key to improving student success in learning English. Toktarova (2024) reported that the students in her study used direct (cognitive, memory) and indirect (metacognitive, social) strategies to get psychological support and achieve confidence in academic language use. These studies focused on students in higher education institutions, while Hajar's (2024) study studied 11th grade students' use of LLS in BIL secondary schools in Kazakhstan. Using Dörnyei's L2 Motivational Self System as a framework, he found that students demonstrated their agency by applying effective learning strategies, and seeking support through paid private tutoring. The present study is similar to Hajar's (2024) work with secondary school students in Kazakhstan but is different in terms of its focus on students from two different grade levels emphasizing the unique contribution of this research.

Summary

Student agency research is complex, taking into account a wide variety of affecting elements and settings. Student agency is described as the potential, based on beliefs and skills, to engage in purposeful acts in learning that are influenced by external influences.

Studies on agency often divide the notion into three categories: agency models, agency's effect on other variables, and how external circumstances affect agency itself.

Teaching approaches such as Project-Based Learning (PBL) have been found to promote agency by providing choice and autonomy, with instructors enabling student-led inquiry. This promotion of autonomy is critical in CLIL (Content and Language Integrated Learning) classes, where students study subject matter as well as a second language. CLIL, which originated in Europe, adds an extra language to teach material, making Kazakhstan's extensive adoption a pioneering move in Central Asia.

CLIL gives unique insights into agency in Kazakhstan, where students encounter regionally specific language and educational barriers. Limited teacher skills and a lack of appropriate resources hinder CLIL implementation, emphasizing the need for more study into how students exercise agency in these circumstances. Language Learning Strategies (LLS), which are behaviors that make learning simpler, quicker, and more self-directed, assist students in topics such as math, chemistry, and biology in navigating the combined obstacles of content and language in CLIL contexts.

This comprehensive knowledge of agency, teaching techniques, and learning strategies emphasizes the importance of agency in multilingual educational environments, highlighting the necessity for future research into these dynamics in CLIL settings in Kazakhstan. Additionally, these concepts form the basis of the grounded theory design which will be explained in the following chapter.

Chapter 3: Methodology

Introduction

This chapter presents information related to the research design, site, sample as well as the data collection and data analysis procedures. Ethical considerations are also presented along with a chapter summary.

Research Design

A comprehensive research design is vital in the research process. The choice of the research design is determined by its ability to effectively address the research goals, objectives, and questions (Cohen et al., 2018). This research aims to give a thorough knowledge of the role of agency in choosing schools, challenges, and agency techniques that characterize the student experience in Kazakhstani CLIL settings. Considering the specific objectives and inquiries of the research, a qualitative methodology was used for this study. Furthermore, this approach enabled the researcher to investigate the above topic and acquire a more profound understanding of a central phenomenon (Creswell, 2012). The qualitative technique is ideal when the researcher aims to investigate how humans comprehend, encounter, interpret, and generate the social world (Sandelowski & Barroso, 2007). Moreover, this method is extremely helpful for comprehending not only the occurrence itself but also the manner and rationale behind it, providing vital insights that numerical data cannot give.

Within the qualitative research paradigm I employed a case study research method, which focuses on a program, event, or action engaging people rather than a group perspective (Creswell, 2014). Additionally, Simons (2009) argues that case study is advantageous as a research design because it is flexible and not limited by time or methodology (p. 23). In essence, this research design may be executed over a few days or extend over many months, depending on the duration of the research project. However, a

significant critique facing the application of case studies in empirical inquiry is its limited ability to generalize research results. This is because researchers, particularly those who focus on a single example, have little evidence to support their claims (Flyvbjerg, 2011). In response to this critique, the objective of doing a case study is to enhance and generalize ideas (analytic generalization) rather than to simply document frequencies (statistical generalization) (Yin, 2009, p. 15).

Additionally, this research utilizes a Grounded Theory approach to investigate the notion of student agency in secondary education that uses CLIL in Kazakhstan. The selection of Grounded Theory was based on its ability to facilitate the creation of a theory that is firmly grounded in the experiences and viewpoints of the participants. This is crucial considering the limited investigations into student agency in CLIL settings in Kazakhstan (Charmaz, 2014; Glaser & Strauss, 1967). This methodology enables the identification of patterns and correlations within the data, without being limited by preexisting theory or assumptions, therefore providing a novel and situation-specific comprehension of student agency (Charmaz, 2006). Moreover, the grounded theory approach is characterized by its inductive, comparative, iterative, and participatory nature. The techniques of grounded theory include systematic and adaptable instructions for gathering data in order to develop hypotheses directly from the found evidence (Charmaz, 2006). The grounded theory approach starts with inductive data, employs iterative techniques of alternating between data and analysis, utilizes comparison methodologies, and maintains active interaction and engagement with both the data and the developing analysis.

Sample

This research seeks to examine how students in secondary schools exert agency in the organized but dynamic setting of CLIL courses. The study of agency in adolescents in

educational contexts in Kazakhstan is particularly intriguing due to the ability to negotiate intricate social, intellectual, and linguistic environments. In the Kazakhstani context, students from BIL are a great group for examining agency, because they learn in a unique multilingual setting. Students in BIL schools study four languages (Turkish, Russian, Kazakh, English). Agency, in this case, becomes a tool that enables students to adapt, take ownership of their learning process, and succeed in a demanding educational framework.

The present research used a purposeful sample technique to deliberately choose participants and concentrate on certain individuals or locations in order to investigate the agentic student experience in Kazakhstani CLIL settings (Creswell, 2014). Likewise, application of purposive sampling, as advised by Patton (2015), facilitates the incorporation of participants who are most inclined to provide comprehensive and appropriate information about the research inquiry. Thus, for this research, I recruited 13 students under the age of 18 from one Bilim Innovation Lyceum school. The selection of 13 participants for interviews and classroom observations was deliberate, taking into account the need for a well-rounded sample size that enables a thorough qualitative investigation of student agency, while also guaranteeing a varied representation of student experiences in CLIL environments. In addition to being enrolled at BIL, The participants were required to meet two criteria: (a) they had to have been studying the CLIL course for a minimum of one year; and (b) they had to be enrolled in 8th or 10th grades. . I established this minimum duration of subgroups' participation in the CLIL course to ensure students demonstrate a significant degree of understanding of the concepts being studied. Furthermore, adolescents, at a crucial period of development, demonstrate a notable rise in independent learning and autonomy, making them an excellent cohort for investigating student agency (Zimmerman & Schunk, 2011). Participant information is provided in Table 1 below.

Table 1*Participant Information*

Participants	Grade	Gender
Participant 1	8	Male
Participant 2	8	Male
Participant 3	10	Female
Participant 4	10	Female
Participant 5	10	Female
Participant 6	10	Female
Participant 7	8	Female
Participant 8	10	Male
Participant 9	10	Male
Participant 10	10	Male
Participant 11	10	Female
Participant 12	8	Female
Participant 13	10	Male

Concerning the optimal number of participants in case studies, Yin (2014) suggests that a range of 6 to 10 participants may be adequate to capture variation without requiring a large amount of data for analysis. This is particularly true for semi-structured interviews, which are characterized by their detailed nature and the researcher's ability to ask questions with some flexibility. The case study technique is also very beneficial for comprehending the contextual elements that impact student agency, including school culture, methods of education, and relationships among peers. Although the intended number of participants for this study was 10, I soon realized that I need to recruit more participants as some of the male students gave very short responses. For this reason, a total

of 13 people were selected to participate in the data-gathering process of this thesis research.

Research Site

The research was conducted at one of the elite schools and mixed gender BIL which is located in the north of Kazakhstan. Because of their combination of subject matter knowledge and language study, BIL schools qualify as CLIL institutions. Emphasizing studying both the subject content and the foreign language simultaneously, BIL teaches STEM courses like mathematics, physics, and biology in English in line with the basic ideas of CLIL.

Moreover, there is an additional rationale for choosing the BIL. While renowned NIS schools were the first to embrace the CLIL approach and subsequently disseminate their skills and knowledge to other schools, BIL schools have been the first to use EMI since 1992. They are internationally recognized as one of the leading educational institutions in Kazakhstan that use the CLIL methodology. Moreover, whereas there was is much research on CLIL in NIS, there was is just a limited number on BIL. Based on the above-specified criteria, the BIL was chosen to examine student agency in CLIL classrooms.

Data Collection Tools

The data for this case study were collected via classroom observations and interviews. Classroom observations offered contextual knowledge of how student agency was exercised in the natural environment of CLIL courses. The observations focused on students' encounters in CLIL courses, their views of autonomy (agency), engagements with instructors and classmates, and their strategies for processing educational material using English. The use of a semi-structured style in interviews following these

observations allowed me to go further into the agentic behavior of the students, facilitating a more comprehensive and exhaustive data gathering that is in line with the focus on depth and discovery in grounded theory (Charmaz, 2014).

The selection of semi-structured interviews as one of the tools for data collection was based on its adaptability and comprehensiveness, which are essential for investigating the intricate and individual aspects of student agency (Cohen et al., 2018). The interviews were carried out with a sample of 13 students from BIL. These 13 students, four from grade 8 and nine from grade 10, were selected based on their agentic behavior during the classroom observations. The interviews provided valuable insights into the students' perspectives, encounters, and manifestations of agency within their CLIL educational setting. A comprehensive interview guide with open-ended questions were created (see Appendix B) building upon the preliminary literature. The purpose of this guide was to ensure uniformity in interviews while also allowing for the exploration of emerging topics as they develop throughout the discussions (Kallio et al., 2016).

Recruitment Procedures

After obtaining the necessary ethics approval, I contacted the school administration to explain my research and gain permission for classroom observations as well as to recruit students for subsequent interviews. Next, I requested to meet with teachers of groups of students who have been studying in STEM classes taught in English for a minimum of one year. Then, I gathered the teacher's consent form for my observation process. Considering my participants' age (under 18), it was important to get parental consent for observation. I provided teachers with a verbal overview of my research, including its objectives and procedures. The teachers then communicated this information verbally to the parents. After the parents agreed, I sent the parent consent forms to the teachers (see Appendix C). The teachers subsequently distributed these consent forms to the parents for their review and

formal approval. Once the parents have given their permission for the classroom observation, I proceeded to request permission from the students to observe. Before starting classroom observation, I handed out the student assent forms to participants (see Appendix D). Additionally, the written parental consent and student assent form included the possibility of interviews. During the classroom observation, I took notes on students who appeared to be exercising their agency. Then, I reviewed parental consent and student assent forms and approached the selected students through the curator to set up interviews. Since the curator is not involved in students' academic lives, this approach provided some privacy and safety for students. This way, the teachers just facilitated the distribution of the permission forms to parents and were not apprised of the individual students chosen for the interviews. Finally, after participants were confirmed, I contacted participants again to set up a convenient time and place for them for the interviews either during the breaks or after school to guarantee the least possible interference with their academic schedules.

Data Collection Procedures

For this multiple case study, data were collected from interviews and class observations. Individual semi-structured interviews were conducted to supplement observational data on student agency with students' insights into their perspectives, encounters, and manifestations of agency in a CLIL educational setting. Two classroom observations were conducted. The first observation took place in a Biology class in grade 8 and Math class in grade 10. Observations are especially useful in case studies because they allow for a direct evaluation of relationships, behaviors, and classroom dynamics that may not be completely represented by interviews alone (Yin, 2018). Then, a sample of 13 students studying in grades 8 and 10 were selected for a follow-up interview. One interview was conducted with each of the 13 student participants. The interview was audio recorded and conducted face to face after obtaining participant consent. The questions focused on

students' encounters in CLIL courses, views of autonomy, engagements with instructors and classmates, and their strategies for processing educational material using English.

Data Analysis

Creswell (2012) suggests that while analyzing data in a case study, researchers should first inspect the data, then code and identify themes. Transcription and analysis of the interview data (see Appendix E) along with my observation notes were conducted utilizing grounded theory methods, such as coding, note writing, and constant comparison. I coded the data manually, by printing out the interview transcripts and interacting closely with the data, producing codes, classifications, and themes directly from it rather than software. For a sample of the coding process, see Appendix F. Moreover, this process helped with the organization and segmentation of themes, both of which are necessary for meaningful interpretation (Creswell & Poth, 2016; Saldaña, 2021). After, transcription of the interview, I conducted an open coding process by deconstructing the gathered data into distinct components, thereby elucidating noteworthy patterns, themes, or ideas that arise from the data. Next, I employed axial coding to initiate the connection of these codes by recognizing the connections between themes and ideas. This stage enabled me to classify overarching topics associated with student agency in CLIL domains. Finally, the process of selective coding involved refining and integrating the categories into a coherent and fundamental subject or theory that elucidates the phenomena of student agency (Charmaz, 2006). After the coding process, I applied a constant comparison method (Glaser & Strauss, 2017), where fresh data is compared to previous data to refine the themes or ideas throughout the coding process. Moreover, I continued to code and analyze data until data saturation was achieved, which means that fresh data no longer adds to or affects the evolving theory (Glaser & Strauss, 2017).

Ethical Considerations

The recruitment procedures and the subsequent data collection procedures started after obtaining official ethics approval from the Nazarbayev University Institutional Research Ethics Committee. As explained in the Recruitment Procedures section, consent was obtained from the school, the teachers whose classes were observed, and from the parents of the students who were interviewed and the students themselves. The consent forms contained all the information related to the study including any party's decision to withdraw without any kind of pressure or inquiry into their reasons for doing so.

In addition, all necessary steps were taken to respect the participants' privacy; any presentation of the data in this thesis or in subsequent publications will include no personally identifying information. Participant codes were used to replace the participants' actual names. All personally identifiable information, including names, precise references to places, or other particular details that may potentially reveal the identities of participants were eliminated or made more generic throughout the transcribing process. Moreover, all data collected from the participant will be promptly and securely erased from the research records after two years.

This research involves no more than minimal risk. As the researcher, I made sure the questions posed during interviews were intentionally tailored to be suitable for the students' age, show respect, and avoid being invasive. These questions aimed to explore the students' experiences and perspectives about their independence in the CLIL learning environment. I was aware that students may experience anxiety or uncertainty while responding to questions, particularly when they are prompted to introspectively consider the obstacles or hardships they have encountered in their academic pursuits. Certain questions may specifically address personal experiences related to language acquisition, active involvement in the classroom, or relationships with instructors and classmates,

therefore potentially provoking emotional reactions. Certain students may have inherent discomfort when analyzing their language acquisition patterns or academic achievements, particularly if they are not used to engaging in conversations about these subjects. To address these concerns, I let them know they could skip any question if they do not want to address the issue, because they can fear that their answers can affect their grades or academic status. They were informed that their replies will not be disclosed to instructors or classmates. Additionally, after the interview and with the recorder turned off, I included a short, informal cool-down session by asking students “how do you feel now? Did the interview raise any difficult feelings?” and made sure I offered emotional support if needed to.

In spite of the risks, the participants may find their participation in the research beneficial. Through their involvement in the research, students may deepen their understanding of their own responsibilities, decisions, and perspectives throughout their educational journey. Engaging in self-reflection may empower students by emphasizing the significance of their viewpoints in influencing their educational experiences, in accordance with the concepts of student-centered learning (Ryan & Deci, 2017).

By emphasizing beneficial methods and addressing obstacles linked to student agency in CLIL, this research may help to refine and improve CLIL implementation tactics. This helps not just the participants, but the whole school community by allowing educators to use more effective, agency-promoting ways.

Summary

This chapter presented information related to the research design, site, sample as well as the data collection and data analysis procedures. Ethical considerations were also presented.

Chapter 4: Findings

Introduction

The chapter presents the findings of the study, which investigated how students exercise their agency in navigating challenges while learning STEM subjects in English in a CLIL school. The study employed a qualitative research design, using semi structured interviews and classroom observations. Thirteen students from a BIL school in Kazakhstan participated. The class observations were conducted to explore how students exercise their agency in the classroom and to select the participants for the interview. The data were analyzed and the findings are organized and reported in the subsequent sections in line with the two main research questions. Accordingly, the findings are presented as two main themes. The first discusses the challenges that students faced while learning STEM subjects in English. The second theme focuses on strategies that students used to overcome these challenges by exercising their agency.

Student Challenges while Learning STEM Subjects in English

Two types of challenges emerged from the data: academic and emotional challenges for students learning STEM subjects in English. Students reported that they had difficulty learning new vocabulary and switching between languages. These challenges are explained in detail below.

Academic Challenges

Language Adaptation – Initial Challenges. Students, particularly 10th graders, described their experience in CLIL as a long term process of adaptation. Some participants indicated that it was difficult to adapt because they either came from Kazakh- or Russian Medium of Instruction schools and found it difficult to move to English medium schools. This adaptation became more difficult if their prior knowledge of content in Russian or Kazakh was already weak, making the transition to English more difficult. For these

students, language adaptation is not just about learning new vocabulary but also an additional layer of cognitive load that slows their academic progress and adaptation. Participant 4 shared: “And if you studied the subject in Russian or Kazakh and didn't understand it well, studying it in English will be even more difficult. Because you don't understand the language, and you don't understand the topic at all”. This statement shows how language and content comprehension challenges are deeply intertwined, creating a unique adaptation process for the students in CLIL settings.

The eighth graders in the study mentioned it was hard to adapt to the new CLIL educational environment, particularly the language medium of instruction when they started studying at this school in the seventh grade. Three eighth graders out of four expressed the same difficulties:

For example, in the village where I lived, I only spoke Kazakh and studied in Kazakh as well, not even Russian. And when I came here, it was very difficult to switch to English right away. There were difficulties in this regard, but I've started getting used to it. (Participant 1).

This statement highlights the experience of the participant who was raised in a monolingual environment (Kazakh-speaking village) and educated exclusively in Kazakh, and found it difficult to switch to an English language academic environment.

These statements illustrate how students faced significant challenges at the beginning particularly with adjusting to the English medium of instruction.. The following sections will explain the differences of adaptation process between 8th and 10th graders.

Comparison of the Adaptation Process between 8th and 10th Graders. While both 8 and 10 graders faced the similar challenges with adaptation in their early stage of learning, their experiences differed due to the amount of time they had spent in the CLIL

environment. Eighth graders are still in the process of adaptation. For example, 8 grade students' reflection on the phrase: "Getting used to it" indicates a gradual adaptation process as they become more familiar with the new language environment, highlighting the process of overcoming the initial language obstacles.

However, 10th graders have had more time to develop their English proficiency and academic confidence. They shared the similar difficulties in their early years but they emphasized how continuous exposure and teachers' support helped them overcome these challenges:

In the seventh grade, when I first started, it was very difficult. But they gave us additional English lessons, and we were able to improve our English. Still, it was hard to grasp everything at once, but now, being in the 10th grade and having studied in English for four years, it's become a habit. I even find that when reading a book in Russian or Kazakh, the information reaches me not faster than in English. Thanks to this, my English is very good now. (Participant 4)

Another participant indicated the impact of the long- term adaptation process:

At first, when I came here in the 7th grade, it was difficult for me. Because I didn't have a foundation, and I didn't know the terms for Biology, Physics. So it was really hard to study in English, but over time, you get used to it, and the teachers explain automatically, and you understand everything they say. (Participant 1)

This shows that, over time, students move from struggling with comprehension to feeling comfortable in an English medium of instruction environment. Ultimately, it may be argued that eighth graders are getting adjusted to it, implying that they are still in the process of adaptation, but tenth graders have already adapted to the new linguistic environment.

Dominant Language Shift. The findings indicated that during the process of adaptation, the continued exposure to the English language led to a shift in their dominant academic language from Russian or Kazakh to English. Participants reported that over time, this adaptation process transformed into a source of strength to the extent that some students even developed a preference for learning STEM subjects in English. As Participant 9 illustrated in her response: “Now, even I have the opposite problem: if I watch videos about Physics in Kazakh or Russian, I don’t understand it.” This indicates that prolonged exposure to English-medium education enabled students to incrementally enhance their confidence and cultivate a preference for English in academic settings, as seen by the experience of this student who now struggles to comprehend Physics in Kazakh.

Other students also highlighted their growing preference for the English language, even when given an option to choose the Kazakh language: “I’ve probably gotten used to it since the 7th grade. If I were given a choice now to study biology in Kazakh or English, I would still choose to study it in English.” (Participant 9). This sentiment was shared by two students who mentioned: “It’s easier for me to study them in English rather than in Kazakh” (Participant 4) and “We are very accustomed to the English language; all these terms and phrases are already like native to us” (Participant 7).

These statements indicate that the students transform from struggling learners to confident users of English in the academic context. What was formerly seen as an obstacle—acquiring academic subjects via foreign language, eventually became an advantage, enabling students to engage more effectively in CLIL and develop academic confidence.

Learning New Vocabulary. One of the main difficulties students reported in CLIL

classes was learning new vocabulary in English. Students expressed that these unfamiliar words made it harder to grasp the key concepts, ultimately affecting their comprehension of the whole subject or topic. As Participant 12 mentioned: “Some terms are complex. You need to learn and always review them because during lessons, when those words appear, you might not know them. “Sometimes, there are words... whose meanings and essence are impossible to convey or translate.” Another student recalled the difficulties of learning biology terms: “Our teachers explain everything in English. Sometimes we don’t know the new words, and they explain them in Russian, like for biology. Many terms there I may not know. For example, what is a valve in the digestive system?”(Participant 8). The struggle with specialized vocabulary was not limited to Biology but also with other STEM subjects. As Participant 6 shared: “In seventh grade, it was very difficult for me, especially in physics and mathematics, because various signs, etc., are in English, and I hadn't learned the terms.”

To sum up, students faced significant challenges with subject specific vocabulary in CLIL, particularly STEM subjects. The complexity of academic terms often made the comprehension difficult. Some words were hard to understand because their meanings did not easily translate into students’ native language. When teachers provided explanations in English, they occasionally used Russian to explain difficult words for students, especially in subjects like biology. Additionally, learning new technical vocabulary in physics and mathematics was particularly difficult in their early stage of learning.

Emotional Challenges

Findings from the participants’ responses revealed several major themes related to language anxiety, self-consciousness, self-comparison, and perceived importance of English proficiency. These themes highlighted the emotional challenges faced by participants when speaking in English.

Language Anxiety and Fear of Judgment. Participants' answers indicated a strong presence of language anxiety when speaking in English. Several students expressed nervousness when engaging in conversations, particularly due to the fear of being judged. One 10th-grade participant stated: "I was nervous speaking. And I also felt like if I spoke English with others, it would seem like I was showing off" (Participant 3). The participant's concern that speaking in English might make them seem like "showing off" highlights their fear of negative social evaluation, as they may be perceived as trying to act superior by using English. Another student noted: "Speaking in front of an audience was a problem. I was afraid of being judged" (Participant 4). This fear shows a sensitivity to how others perceive them or see them, particularly in group settings where others might or might not be proficient in English. Moreover, these participant may come from a social or cultural background where humility is valued and standing out is discouraged. As a result, it can hinder their desire to speak to avoid being judged.

Self-comparison. Several students compared their English proficiency to that of their peers which influenced their confidence in speaking. One participant stated: "At the beginning, when I just started speaking, I felt like others knew it better than me, and I felt a bit shy" (Participant 6). Similarly, other students expressed: "Some others knew better than me. I felt embarrassed when I said something wrong" (Participant 9). These responses suggest that self-perception of their own ability, particularly in relation to their perception of others' proficiency levels, may serve as a significant emotional barrier that hinders their willingness or confidence to actively engage in an English-speaking environment.

Test Pressure. Some students report feeling anxious during the test, particularly in the speaking section of the standardized tests which they take once a semester. One participant stated: "I do get anxious during the test" (Participant 5). Another participant mentioned: "I was nervous during the speaking section. I don't know why I couldn't speak

English. I said a lot of things incorrectly. Some others knew better than me. I felt embarrassed when I said something wrong” (Participant 13). This student experience reflects a combination of nervousness, and self-doubt, fear of judgment during the speaking section. The pressure of the test, coupled with self-comparison and fear of making mistakes created a challenging environment.

The Importance of English language for Long-term Career Outcomes. The perceived importance of the English language for their future was highlighted by 8 out of 13 participants in both grades with one participant explaining that this created additional pressure. He explained: “I had a situation where when I spoke English, I had inner fear and anxiety. Since English is a very important language for me, I feel that if I don’t study it properly, it will strongly affect my future” (Participant 2). This indicates concerns about long-term academic and career outcomes heightened the emotional stakes of language learning, potentially amplifying feelings of anxiety and self-doubt.

Exercising Agency: Strategies for Overcoming Challenges Faced by Students While Learning STEM Subjects in English

Students face many challenges when learning STEM subjects in English including language barriers, learning complex vocabulary, and a sudden shift to the English medium of instruction. In addition to academic challenges, they also faced emotional challenges such as language anxiety, fear of judgment, self-comparison, test anxiety, and the perceived importance of English proficiency for long-term career outcomes.

However, despite these challenges, students did not stay inactive. Instead, they used a range of strategies to get through their learning obstacles. These tactics vary from digital learning strategies, organized self-study with textbooks, seeking support from both teachers and classmates, self-regulation, and observing strategies. Their capacity to adapt

and regulate their learning process indicates student agency since they actively choose how to overcome these challenges.

The next part delves into the precise strategies utilized by students focusing on how learners control their learning experiences.

Strategies for Academic Challenges

Digital Learning Strategies. The results reveal that participants depend largely on digital tools and resources and self-directed learning practices for overcoming academic challenges. Their methods vary from organized problem-solving strategies to interactive vocabulary-building techniques and AI-generated explanations.

Progressive learning was a frequent method among participants, in which they began with fundamental ideas and proceeded to more sophisticated ones over time. One participant demonstrated this strategy in the context of studying geometry: “Well, for example, when I don't understand geometry, I always turn on YouTube. First, I solve easy problems, then I review all the formulas, and after that, I tackle more complex solutions” (Participant 1). This answer emphasizes a step-by-step approach to learning, implying that breaking down a topic into smaller portions leads to improved understanding. By repeating core information before trying more complex tasks, the student ensures an organized and productive learning process.

Another important finding is the usage of digital apps for vocabulary learning. One participant shared how she used Duolingo:

Well, I have an app on my phone called Duolingo. It's like a little owl; you write words there, and it shows a flashcard with the word. When you click, the word appears, and if you know it, you swipe left or right and continue studying.

(Participant 2)

This response demonstrates an engaging and gamified way of learning vocabulary which can encourage students to learn more effectively.

One of the main of the participants' tactics goes beyond structured learning to relying on the instant access to key information. One student explained how they approach words or terms which they are unfamiliar with: "In those moments, I just used Google and wrote down some words I didn't understand, and then asked the teacher about them in the next lesson" (Participant 2). This statement shows a blended learning method where teachers' explanations are combined with independent study. It means that students seek deeper understanding and knowledge via direct interaction with teachers in addition to depending on digital resources for fast response.

A common important factor in participants' learning process is the use of generative artificial intelligence resources. Several students highlighted the effectiveness of ChatGPT and how it helped them to understand content better: "I use a strategy. It's just ChatGPT. I simply paste my question that I didn't understand, and it explains it to me in more detail. That helps me understand it better" (Participant 3). By using ChatGPT as a personal tutor, learners may get more thorough knowledge of difficult concepts or subjects that may not be immediately apparent via textbooks or classroom lectures.

In addition, Participant 9 also indicated the use of digital tools for content comprehension: "The first thing I do is go to Google and search for answers there. I also use ChatGPT and YouTube to watch video lessons". This shows that students prefer a multimodal approach, in which they use search engines, AI, and YouTube videos. This multi-layered approach to learning states how adaptable and easily accessible internet sources are.

Overall, these findings highlight how students actively seek online resources to support their studies. They use a combination of multimodal learning strategies, independent search, interactive vocabulary building, and AI-generated explanations. Ultimately, their dependence on technology enables them to effectively fill in knowledge gaps, indicating a move toward independent, self-directed learning in the digital era.

Organized Self-study with Textbooks. Even though digital tools were popular, some students preferred more conventional self-study strategies like reviewing textbooks. As one 8th-grade student stated:

I'll think about what exactly I didn't understand. After that, I'll go through the textbook, and if I don't understand the previous topic, I'll start from there. Because if I didn't understand one topic, I won't understand a more difficult one
(Participant 12)

This answer emphasized a structured method of learning in which the learner understands the need to grasp fundamental ideas before moving on to more difficult subjects. This student also shows her self-regulation and metacognitive awareness.

Support from Teachers as a Key Resource for Learning. Many students realize how crucial it is to reach out to teachers for assistance when they face challenges in their studies, especially when trying to grasp new concepts or unfamiliar vocabulary: "In class, I'll usually ask the teacher. Even after the lesson, I can always turn to the teacher, and they will explain everything to me" (Participant 4). Another student added: "If you don't understand a word, you ask the teacher to translate it, then you continue"(Participant 5). These statements indicate that teachers are a dependable source of help for students, offering explanations both during and after classes. They demonstrate that, while students

exercise their agency in their learning process through self-study, they also recognize the value of engaging with teachers for understanding complex concepts and subjects.

For many participants, raising questions in class is important to avoid any misunderstandings. They stated that taking too much time to ask for clarification might cause more confusion and make it harder to understand more complex subjects: “I would ask questions from the teachers, and if I didn’t ask, I would end up not understanding. It’s best to ask about anything you don’t understand right then and there” (Participant 7).

However, not all students immediately go to their teachers when they encounter challenges. Some of them like to try to solve problems by themselves first and only ask the teacher when they do not have alternative solutions: “I try to solve it myself first, and if I don’t understand at all, then I turn to the teacher” (Participant 5). This statement shows a combination of independence and reliance, where learners seek to be self-sufficient while still appreciating the knowledge of their teachers.

Peer Support as a Learning Strategy. In addition to the teachers, classmates are a key source of academic support for students. Group study times with friends provide a different way to get assistance. As Participant 5 shared, “My friends and I sometimes organize study sessions. We gather and study together. Last time, I asked my friend to explain algebra to me.” Another student stated: I had to score excellently on the next test. So, I turned to my friend for help with the questions, and he, of course, helped me” (Participant 12). These statements highlight how important it is for classmates to work together in learning, illustrating that students often turn to their friends for help in grasping complex subjects.

Some students found that explanation from peers was more comprehensible than their teachers’ “Math is harder for me than all other subjects; my friend always helps me

and explains the topics I don't understand, and I somehow understand the topic better from her words” (Participant 9). This indicates that collaborative learning may serve to improve understanding and support student agency as students take initiative in their own learning and seek assistance from someone they feel comfortable with.

Navigating Emotional Challenges

Self-regulation and Observing Strategies. Emotional challenges such as language anxiety, fear of failure and judgment, and self-comparison might be influence students' learning outcomes. Many students developed strategies to deal with these obstacles, allowing them to develop resilience and confidence in academic settings.

Some students worked on self-regulation strategies to control test-related anxiety. One student stated: “I try to calm myself by taking a deep breath and reminding myself of my goal” (Participant 2). This answer demonstrates how self-regulation strategies can help students manage anxiety. This student shows emotional awareness and proactive coping strategies. Moreover, he used calmness and focused on their goals to overcome nervousness and anxiety. It indicates an important part of agency, where the learner actively works to manage their feelings. Furthermore, several students conquered the fear of speaking in front of an audience by observing their peers. As it was illustrated in one of the student’s responses:

Actually, there wasn't a specific strategy. Then I noticed that in speaking, people don't pay much attention to word order, and everyone understands. Seeing my friends, who were very good at English, communicate with occasional mistakes and not worry about grammar, I realized that I just needed to speak. I started speaking with them, making mistakes, and asked them to correct me. As they

corrected me, I became more confident. Even when my English wasn't perfect, I gained confidence (Participant 9).

This statement shows a change in thinking from being afraid of making mistakes to seeing communication as a way to learn. Finally, by actively engaging in conversation, and making mistakes, the learner took charge of his learning to overcome emotional challenges. This experience highlights how important it is to learn by interacting with others and getting feedback which can boost confidence even when things are not perfect.

Summary

This chapter looks into the challenges and methods students faced when studying STEM subjects in English at a CLIL school in Kazakhstan. Students encountered major academic challenges including, language adaptation, learning new vocabulary, and transition from Kazakh or Russian school to English. Moreover, language anxiety, self-comparison, test pressure were the main emotional challenges. Despite these challenges students actively exercise their agency by using different strategies, including: utilizing digital tools such ChatGPT, Duolingo, and YouTube; participating in organized self-study with textbooks (structured self-study); seeking help from teachers and peers; and learning self-regulation to control their anxiety. Many students gradually gained the confidence and a preference for learning in English, transforming initial challenges into strength. These results emphasize the significance of student agency in navigating the challenges of CLIL education, revealing how students adapt, persist and take ownership of their own study and thrive in a challenging academic environment.

Chapter 5: Discussion

This chapter discusses the findings of this study, which explored the challenges faced by Kazakh students while studying STEM subjects in English and how they used their agency to overcome these challenges. The discussion chapter is organized by two main research questions. The first section focuses on the challenges faced by students in the CLIL context, in particular academic, emotional, and linguistic challenges. The second section examines how the students used their agency to overcome these challenges, providing insights into their agentic strategies. Two important areas—changes in language dominance among students with longer CLIL exposure and comparisons between 8th- and 10th-grade students—will also be explored to help contextualize the findings of the study better. In the final section, the results of the grounded theory approach will be presented as an Adaptive Multilingual Agency (AMA) Framework, which conceptualizes student agency as a dynamic process driving the interaction between challenges, strategies, and outcomes. These sections illuminate resilience and adaptability among Kazakh students, which highlight the role of agency in the shaping of their CLIL experiences.

What Challenges did the Kazakh Students Face While Learning STEM Subjects in English?

The findings of this study highlight the language challenges students encounter when moving from a Kazakh or Russian medium of instruction to a CLIL environment, where English is the main language of instruction. Many participants described this adaptation process as long-term, which aligns with previous research pointing to the cognitive load faced by students learning academic content in a second language (Martyn, 2018; Rong & Nair, 2021). Consequently, Sweller's Cognitive Load Theory (1988) offers a useful lens for understanding how learning in a second language, combined with the content itself, creates extra mental pressure on students. According to this theory,

difficulties in understanding both the language and the content are closely linked, especially when students have little prior exposure to the subject matter in the target language. Moreover, as one of the participants (Participant 4) mentioned, the challenge of studying in English is intensified when students do not have a solid understanding of the subject in their native language (Russian or Kazakh). It should be noted that the students in this study came from Kazakh and Russian medium schools. They had been taught in their native languages, and they only had to learn content, but transitioning from these schools to CLIL, where they have to acquire content and language, particularly English, creates the cognitive overload. This cognitive overload, which results in a long period of adaptation, is in line with the findings of Llinares et al. (2012), who argue that students' ability to understand academic content can be significantly hindered when they have to process both complex subject matter and language simultaneously. This issue is especially noticeable among students from monolingual backgrounds, like Participant 1, who found it difficult to adapt to English-medium instruction after being educated in a Kazakh-speaking village.

Another major challenge that students in CLIL programs encounter is learning new vocabulary, especially in STEM subjects (Roth & Bogner, 2024). As the participants in this study explained, their struggles with unfamiliar technical terms in English made it harder to understand academic content. This observation aligns with existing research on the difficulties of mastering subject-specific vocabulary in CLIL contexts (Rieder-Bünemann et al., 2022). The main finding of their study was that students had difficulty not only reading individual words but also understanding their conceptual meanings. Similarly, in the current study, Participant 12 noted that some terms were so complex that their meanings were difficult to convey or translate, reflecting findings from the broader CLIL literature (Meyer et al., 2015). Additionally, a recent study that was conducted in Kazakhstani senior schools found that limited academic vocabulary led the students to rely

on translation tools such as Google Translate, hindering effective learning (Yesmuratova & Shayakhmetova, 2021). Such linguistic shortcomings might result in superficial knowledge of material as students remember the definition of the words without really understanding underlying ideas. In CLIL environments, students often need to learn technical terms that may lack direct translations in their native language or whose meanings are deeply tied to the academic context of the subject (Geoghegan, 2024; Kruawong & Phoocharoensil, 2024). This presents a particularly difficult challenge in STEM fields, where the terminology often includes specialized and abstract concepts that require students to comprehend both the linguistic and conceptual dimensions of the terms (Rieder-Bünemann et al., 2022).

To overcome this gap in vocabulary knowledge, students and teachers in this study utilized translanguaging methods. Students in the study reported that teachers sometimes used their native language (Kazakh or Russian) to explain difficult terms to students. This is consistent with previous studies that showed translanguaging can help improve comprehension in CLIL classrooms where content is taught in a foreign language (Duarte, & Günther-van der Meij, 2020; Garcia & Wei, 2014; Mazak & Carroll, 2017). However, while this approach may improve comprehension in the short term, it may also hinder the development of full mastery of the target language by encouraging students to rely on their native language rather than promoting full mastery of English (Coyle et al., 2010; MacSwan, 2017).

Participants expressed concerns about speaking English, citing fears such as “showing off” (Participant 3) and “being judged” (Participant 4), which reflect MacIntyre’s (2017) idea of fear of negative social evaluation. In places like Kazakhstan where English is not the primary language, this concern may be culturally based. Baker (2011) notes that speaking a foreign language can sometimes be seen as arrogant, leading

to social isolation. The classroom atmosphere further exacerbated these concerns, as students became concerned about how their peers and teachers would evaluate them, which reduced their willingness to participate. This pattern was noted by MacIntyre and Gardner (1994).

A number of participants noted how they compared their skills to those of their peers, with “others know this better than me” comparisons (Participant 6) leading to feelings of shame and isolation. According to Deuel and MacIntyre (2014), how we see ourselves in comparison to others can lead to avoidance behaviors. This was particularly detrimental in mixed-ability classrooms where students, like Participant 9, were reluctant to speak up because they were afraid of “saying the wrong thing.” Such reactions highlight the importance of a collaborative, non-competitive learning environment recommended by MacIntyre and Gregersen (2012).

In addition, summative tests measuring verbal skills were identified as a major source of stress, with participants reporting feelings of anxiety and self-doubt (Participants 5, 13). This echoes Horwitz et al. (1986)’s observation that evaluative attitudes, particularly during spontaneous speaking tasks, can increase anxiety. Hambrick (1988) found that in addition to the pressure to do well in school, grades can also be affected by test anxiety if students are too focused on comparing themselves with others.

For some of the students, their future success depended on their ability to speak English well, so Participant 2 expressed serious concerns about how this might affect their employment. Ferguson (2007) links this tension to the demands of globalisation, where English is seen as a tool for academic and professional development. Interestingly, this approach can stimulate learning, but it can also cause emotional pain and lead to procrastination or disengagement (Papamihel, 2002).

How did Students Exercise their Agency to Navigate these Challenges?

Given all of these multiple challenges, it is important to explore ways to help students overcome these obstacles and support them in general. The use of digital tools was a major part of the students' strategies to cope with academic difficulties. Students often used different platforms and programs to help them with their studies. These included YouTube, Duolingo, and ChatGPT. These platforms played an important role in helping students. In this way, they not only overcome language barriers but also subject-specific difficulties. Mayer's (2005) cognitive theory of multimedia learning agrees with this approach, stating that presenting information in multiple ways, such as text, video, or interactivity, can have a positive effect on understanding and retention. Also, the use of artificial intelligence explanations, such as ChatGPT, highlights the shift to blended self-learning, which is increasingly recognized as an important part of modern education (Kasneci et al., 2023; Kohnke et al., 2023). In this study, students used digital tools to increase their vocabulary, demonstrating self-regulation and independence in managing their learning. This is reminiscent of Zimmerman's (2002) model of self-regulated learning, where students set goals and monitor their progress accordingly by adjusting strategies. They used digital resources to supplement their learning and students were able to fill in knowledge gaps and reinforce their learning, demonstrating greater control over their academic success.

Although digital tools were widely used, some students preferred more traditional self-paced learning with textbooks. Participant 12 demonstrated a systematic approach of learning in which the student recognizes the need of understanding foundational concepts before progressing to more challenging areas. This learner has both self-regulation and metacognitive awareness. This preference supports the idea of structured learning and is consistent with Pintrich and Zusho's (2002) research on metacognitive awareness, where

students agree on the importance of mastering basic concepts before moving on to more complex material. Research indicates that these kinds of structured self-study not only raise academic performance but also help students develop their capacity for self-regulation of their learning (Schunk & Zimmerman, 2012; Zimmerman, 2008). This strategy highlights students' metacognitive skills because they actively regulate their learning by focusing on topics that are difficult for them and mastering them systematically. Students provide themselves with a solid foundation by reviewing the material each time they learn. This is for more complex topics, which is especially important in subjects such as STEM, where understanding previous material is necessary to master new material that follows.

Another key strategy for overcoming academic difficulties was support from teachers and peers. Some students in the study reported that they often turned to teachers for help in mastering difficult topics or to increase their vocabulary. This is consistent with Vygotsky's (1978) theory of the zones of proximal development, which emphasizes the importance of social interaction and the ability to seek help from more experienced people, in this case teachers. Students openly acknowledged the value of turning to them to deepen their understanding in their studies, and teachers were seen as a reliable source of knowledge and clarification. The conclusion that teacher-student interaction plays an important role is confirmed in the use of student-centered classroom activities formation of student activity because teachers not only provided direct instructions but also helped students become more independent in their learning (Llinares & Lyister, 2014).

In parallel, peer support was also important for academic success. Students reported that the camaraderie of classmates during academic test preparations helped them better understand difficult topics. This is in line with Lantolf and Poehner's (2008) work on peer support, which suggests that peers are a valuable source of support, especially when it

comes to language learning. Students who found peer explanations more understandable than teacher explanations show how collaborative learning can improve comprehension and help students overcome difficult material. Peer interactions reduce emotional stress by creating a sense of community and encouraging students to be more unafraid in their academic development (Johnson et al., 2018; Leyk et al., 2017).

In addition to academic strategies, the study highlighted the importance of emotional regulation and self-confidence in overcoming difficulties. Students' self-regulation strategies included methods such as deep breathing and focusing on goals to manage test anxiety and fear of judgment. This is consistent with Pintrich and Zusho's (2002) concept of emotional regulation as part of the self-regulation process, where students regulate not only their cognitive processes but also control their emotions and reactions to learning tasks. By managing their anxiety, students can participate more effectively in learning activities and learning processes, demonstrating a link between emotional regulation and their academic performance (Dörnyei, 2005). The results also show the importance of the role of observational learning in overcoming emotional difficulties, especially in reducing anxiety about making mistakes when communicating with others. Students who observed their more experienced peers confidently speaking despite occasional mistakes were able to change their outlook on things. They were able to accept mistakes as a natural part of the learning process. This reflects Bandura's (1986) social cognitive theory, which states that observing others' behavior and receiving feedback can improve self-esteem and reduce anxiety. By seeing peers participate in activities without fear of judgment, students adopted this behavior. They developed greater self-confidence, which in turn helped them participate more actively in their activities. Self-regulation is further enhanced by competencies such as self-motivation, goal setting,

and adaptive learning strategies. Together, these skills help students effectively overcome obstacles and take responsibility for their learning journey (OECD, 2020).

Language Dominant Shift

An interesting and important finding of this study is that English has become the dominant language for academic purposes among these students who have received CLIL instruction in English for several years. This change is consistent with the observations of Nikula et al. (2016), who discovered that the long-term effect of secondary education in English is that English frequently becomes the primary language in academic contexts. The example of 10th-grade students in the present study shows that as they gradually adapt to English, their language skills improve, and they also gain more confidence in using English for academic learning. This aligns with Baker's (2011) study on language immersion, indicating that extended exposure to a second language can lead to increased language confidence and academic independence. The fact that some participants, like Participant 9, preferred to use English when they had the option really highlights how CLIL environments can help students build their academic language skills in English over time. This shift in language preference shows the positive effects of extended CLIL exposure, where students start to feel more comfortable with the language of instruction and their academic self-concept becomes more tied to it. The language shift observed in this study supports what Coyle et al. (2010) found: that CLIL students not only get better at using the language academically but also become more engaged in their subjects as they get more proficient in the language.

Comparison Between 8th and 10th Graders

Although changes in language dominance draw attention to general sociolinguistic trends, it is equally important to examine how these patterns manifest themselves across age groups. Continuing this theme, this section examines how eighth- and tenth-grade

students' language choices and abilities reflect different phases of this change. The results show that although the early years of CLIL pose linguistic and academic challenges for eighth and tenth grade students, their adaptation varies depending on the length of their English language exposure. This is consistent with current research showing that second language acquisition is associated with systematic immersion as well as time spent on tasks (Lasagabaster & Doiz, 2017). The use of words such as "getting used to" by eighth-grade students suggests that their adaptation process is ongoing. This suggests that a transitional period is determined to some extent by linguistic transformation.

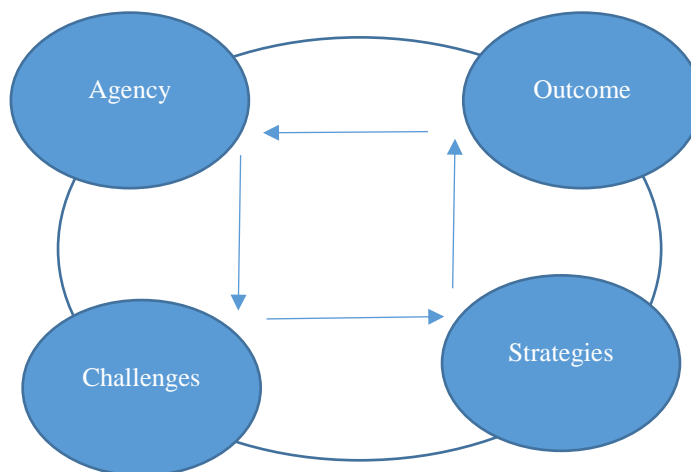
On the other hand, tenth-grade students demonstrate academic fluency and confidence in the language, possibly due to their long exposure to English. The experience of English being a consistent tool for thinking and learning suggests that Cummins' (2008) Cognitive Academic Language Acquisition (CALP) hypothesis, that academic language requires many years to fully develop, applies here. Moreover, institutional support (e.g., additional English courses and teacher support) was crucial to enable these changes; this finding is also supported by the study of Coyle et al. (2010), who highlighted the need for teacher mediation for CLIL success. This developmental trajectory also supports the findings of Huang's (2021) longitudinal study, which shows that CLIL students' academic confidence and language control improved significantly after two or more years of the program. Participants' high proficiency is supported by their mastery of challenging 10th-grade English courses such as biology and physics. These findings highlight the temporal aspect of adaptation to CLIL and imply that long-term exposure and ongoing learning support are closely related to students' engagement and achievement. Students who spend more time in CLIL settings not only gain fluency in the language but also master academic content management techniques, thus supporting the idea that agency is both a product and a method of adaptation (Benson, 2021).

Adaptive Multilingual Agency

The findings discussed thus far show how challenges, strategies, and outcomes shape the complex interplay of experiences in CLIL STEM programs by Kazakh students. These patterns suggest student agency evolves in a dynamic way. A grounded theory approach was employed in order to better understand this process as well as synthesize the study's findings, thus the Adaptive Multilingual Agency (AMA) Framework was developed (see Figure 1).

Figure 1

AMA Framework



Note. Framework created by the author.

This framework conceptualizes agency as being the driving force that is behind students' navigation of CLIL challenges, and that offers up a structured model so as to explain the ways that challenges catalyze strategies that then lead to outcomes that are transformative.

As seen in this study, challenges, which is the first component in this framework, push students into action, thus representing the motivators in this framework. Students do face academic challenges such as learning complex vocabulary which is typical in STEM

subjects, plus also emotional challenges such as language anxiety. In this study, the academic and emotional challenges act as the starting point for engagement with the learning process and students are prompted to take certain proactive steps to overcome these challenges. This supports the idea that challenges are not just barriers but are also catalysts, as the findings of this study show.

The next main component of the Adaptive Multilingual Agency framework are the multiple strategies that students employ which are stimulated by the challenges, and which help students achieve desired outcomes; in this framework strategies act as the bridge between challenges and outcomes. For instance, in order to address language-related and academic content-related challenges, a number of strategies were employed by the students in the study. Furthermore, students with strategies set several goals, and over time, were able to overcome a number of emotional challenges such as language anxiety and fear of judgment through self-regulation strategies. This was depicted by Participant 2, as she used self-regulation to manage anxiety regarding testing. Prior to any tests, she used certain deep breathing techniques in order to calm herself. The ability of students to manage academic and emotional challenges relies on each of these fundamental adaptive strategies. This aligns with Zimmerman's (2002) model of self-regulated learning which suggests that students actively monitor, control, and then adjust learning strategies based on active experiences. Furthermore, several students conquered the fear of speaking in front of an audience by observing their peers. As illustrated in one of the student's responses, "Actually, there wasn't a specific strategy. Then I noticed that in speaking, people don't pay much attention to word order, and everyone understands. Seeing my friends, who were very good at English, communicate with occasional mistakes and not worry about grammar, I realized that I just needed to speak. I started speaking with them, making mistakes, and asked them to correct me. As they corrected me, I became more

confident. Even when my English wasn't perfect, I gained confidence” (Participant 9). This aligns with Dewaele and Alfawzan (2018) and Ohlberger and Wegner (2019), highlighting anxiety within CLIL settings pushing students toward peer interactions as a strategy for overcoming emotional stress, reinforcing the idea that challenges lead to more adaptive responses, including few peer-supported strategies.

The third and final component of the Adaptive Multilingual Agency framework are the outcomes. Achieving favorable results, such as improved vocabulary or better academic performance, strengthens students' confidence when facing fresh obstacles. This serves as a feedback loop reinforcing students' agency instead of providing static results within a fixed timeframe. This cycle of feedback drives students to change their strategies. Learning processes gradually are also refined as they continue onward. The continuous cycle of adaptation and improvement results in a cyclical process indicating that agency is reinforced through positive and successful outcomes. For example, as students gained academic skills, many students in this study reported on a shift in their language preference from their native languages (Kazakh or Russian) to English. Their agency produces this shift, and also reinforces their confidence as they continue to use English academically. Reinforcing students' agency was also observed in how students overcame emotional challenges to achieve outcomes such as reduced anxiety or higher self-confidence. For instance, students (Participants 9, 2) gained confidence and obtained agency when they saw their peers overcome some similar challenges in a successful manner. This degree of success strengthens the scope of their agency and aligns with Horikoshi (2023), who connects emotional challenges with certain self-regulation strategies, and a focus on goals, indicating that students then prioritize agency over their responses to emotion, and it leads to an improvement in emotional well-being and resilience.

Conclusion

This study revealed many of the challenges that Kazakhstani students face when learning English in STEM courses using language integrated learning approaches such as CLIL. Students studying content in a second language face cognitive overloads that lead to various academic, emotional and linguistic issues. Language barriers, especially with regard to the acquisition of academic terminology, indicate the need to create appropriate systems to support learning. Interpreting complex ideas in local languages can temporarily help, but it can harm the long-term development of the language. In addition, the pressure of testing and peer comparison, as well as problems related to student opinions and unfavorable social assessments, add emotional stress to an already difficult academic environment. The students showed perseverance in overcoming obstacles using various strategies. In addition to reading textbooks on their own, using digital resources such as YouTube, Duolingo, and ChatGPT allow students to learn independently, demonstrating self-regulation and independence. The support of teachers and classmates was also very important, as they created an emotional and cooperative environment in the classroom.

The study also shows the benefits of long-term use of English in CLIL programs, as students continuously improve their academic expression in a foreign language which also increases their self-confidence. A comparison of eighth and tenth grade students highlights the need for time and institutional support for a better transition to English secondary education. The long-term experience of CLIL, along with the constant mediation of teachers and the participation of peers, seems to improve language competence and academic performance according to the findings.

The Adaptive Multilingual Agency (AMA) Framework, formulated via grounded theory, integrates these findings by defining agency as a dynamic process that motivates students to utilize strategies, overcome challenges, and attain outcomes that further

enhance that agency. The concept emphasizes challenges as motivators, strategies as bridge, and outcomes as feedback loop, providing a unique perspective on multilingual agency in CLIL environments. The framework highlights challenges as motivators, strategies as bridges, and outcomes as feedback loops, offering a novel lens for understanding multilingual agency in CLIL contexts.

Chapter 6: Conclusion

This study set out to explore the role that student agency plays within Kazakhstani CLIL settings, with a particular focus on STEM subjects learned in English. Using a grounded theory design, and employing semi-structured interviews together with classroom observations, the study sheds light on the challenges faced by students in one CLIL school and the various strategies they engage in as they adapt themselves to the CLIL approach. As mentioned in the Discussion chapter, the Adaptive Multilingual Agency (AMA) framework emerged from the findings of this study. This chapter includes the following sections: key findings including the relevance of the AMA framework, implications for stakeholders, limitations and recommendations for future research.

Main Conclusions of the Study

The study found that certain academic and emotional challenges in terms of learning subject-specific vocabulary in English, and emotional barriers such as language anxiety and self-comparison are faced by Kazakhstani students in CLIL settings. Notably in STEM subjects, these challenges are compounded by the requirement to learn content and a foreign language at the same time, increasing the student's cognitive load. Over time, as students learned to adapt to the linguistic demands, students actively exercised their agency in spite of facing challenges by employing a range of strategies.

A key finding of the study is that students used digital tools such as ChatGPT, Duolingo, and YouTube so as to support the learning, showing a more self-directed approach for learning. Certain students relied upon structured self-study using textbooks and also sought help from teachers. Students also engaged in peer support so as to navigate the academic difficulties. This reflects in their ability to adapt within the educational settings and even take ownership of their own educational experiences.

Furthermore, the study revealed that certain students became more confident in using English due to their prolonged exposure to the language in this CLIL environment. This exposure resulted in a shift of the dominant academic language from Kazakh / Russian to English. In accordance with this finding, extended study time and continuous exposure to CLIL are important for successful student outcomes.

Additionally, many emotional challenges such as language anxiety and fear of judgment faced by students are highlighted in the research. Breathing deeply and observing several peers who modeled confident language use reduced those emotional hurdles through self-regulation strategies. Students are able to manage all of their emotions, build up confidence as they observe as well as practice and thus gain more agency, which lets them study even despite emotional stressors.

This study confirms the importance of an Adaptive Multilingual Agency (AMA) framework in the CLIL environment, particularly in Kazakhstan where the educational system is transitioning to multilingualism focusing on English instruction. Several challenges were navigated by students in this study including adapting to new academic content in English and managing emotional stress particularly language anxiety. Even with these difficulties, students showed agency by finding ways such as emotional regulation, self-study, or peer support to handle barriers.

As seen in the data analysis, the concepts in AMA provides a rather detailed perception with respect to how students do adapt within their multilingual CLIL environment. This particular study contributes further to the already existing literature on student agency and also multilingual education in CLIL contexts by introducing this specific theory and additionally offering new understandings into just how student learning dynamically adapts itself in such a second-language environment.

Implications for Stakeholders

Kazakhstani stakeholders who are engaged in CLIL program implementation and support can benefit from the AMA, or the Adaptive Multilingual Agency theory.

Educators including curriculum designers, and policymakers should recognize the importance of building emotional resilience as well as academic adaptability as student agency, alongside mastering content and language. Educational stakeholders will be able to design much more supportive and more flexible CLIL environments that do address all of the varied needs of students in multilingual contexts by acknowledging the importance of academic adaptation and emotional regulation.

Educators need to be well-trained in strategies for supporting students' academic as well as emotional needs within CLIL classrooms. This also includes providing safe spaces to students where they are able to practice the language without fear of judgment and to normalize mistakes. This also includes encouraging translanguaging when needed to make sure complex ideas are grasped. Administrators must ensure CLIL programs remain well-resourced. Also, students should have access to digital tools, language support services, like language workshops and to additional learning resources. Furthermore, the school culture must promote emotional well-being for students' complete overall success, particularly with regard to language learning anxiety. Educational policies must consider the adaptive nature that is representative of student agency, specifically in CLIL settings. Policymakers should consider incorporating more AMA into curriculum design so students have the tools and resources needed to develop both language skills and emotional resilience.

Limitations and Recommendations for Future Research

While the development of the Adaptive Multilingual Agency (AMA theory) provides valuable understanding into student agency in CLIL environments, future

research should address some of the limitations in this study. To begin with, the small sample size with just 13 students from one school is not adequate to generalize the findings across other CLIL settings in Kazakhstan. Future research should further expand the sample size, as well as include students from multiple schools in different regions. Furthermore, studies can explore AMA's function in non-CLIL settings. The theory's validity in diverse subjects, most notably outside STEM, could then be confirmed.

CLIL contexts should have additional longitudinal studies based on AMA in order to gain deeper understandings into the overall long-term development of student agency within multilingual education. This could help achieve greater comprehension of how the students' agency evolves in the course of time in responding to ever-changing emotional and also academic challenges. Further research could also explore the AMA attitudes among students as perceived by teachers and administrators. More effective teaching practices and school policies could, in fact, develop from investigating how educators can intentionally support both the academic and also emotional aspects of student agency.

Conclusion

In summary, the current study reveals Adaptive Multilingual Agency (AMA) as being a theoretical framework with which to understand the ways students handle the challenges of CLIL education in certain multilingual settings. Students actively engage within a dynamic process of adapting academic strategies and of regulating emotions for overcoming learning challenges within a second language, as shown by this research through Grounded Theory analysis. The AMA theory contributes to the continually increasing research on student agency as well as offering perspectives for both educators and administrators. Also, policymakers can use the theory for improvement of CLIL programs in multilingual environments. For a further refined comprehension about student

agency inside multilingual education, future research must continue exploring AMA's application throughout varied contexts and subject areas.

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Appendix A: AI Declaration Form



Thesis Title: Multilingual Student Agency in one CLIL School: Evidence from Post-Soviet
Kazakhstan

Declaration of the Use of Generative AI

I hereby declare that I have read and understood NUGSE's policy concerning appropriate use of AI and composed this work independently (please check one):

- with the use of artificial intelligence tools, or
 without the use of artificial intelligence tools.

(If you have used AI tools as defined in the GSE policy document, please complete the rest of this form.)

During the preparation of this thesis/examination, I used _ChatGPT and Grammarly to check if my writing is connected and to check my grammar mistakes

I also declare that I

- am aware of the capabilities and limitations of AI tool(s),
 have verified that the content generated by AI systems and adopted by me is factually correct,
 am aware that as the author of this thesis I bear full responsibility for the statements and assertions made in it,
 have submitted complete and accurate information about my use of AI tools in this work, and
 acknowledge that there may be disciplinary consequences if I have not followed NUGSE's guidelines regarding appropriate AI use.

Name: Daulet A.

Signature:

Date: 27.05.2025

Appendix B: Interview Protocol

Warm-up questions

How was your day at school today? Did you have any fun or interesting lessons?

What is your favorite subject at school and why?

Do you like learning languages? What language do you like the most?

Learning in English

How do you feel about studying topics such as physics and math in English? Do you find it simple or difficult?

What do you do when you do not understand the content (subject)? Do you ask for help or try to solve it by yourself?

What motivates you to keep trying, even if a topic taught in English is difficult?

Student Agency and Decision-Making

How much freedom do you have in deciding what and how you learn in class? Could you provide an example?

Do you choose your own study techniques or do you follow the teacher's instructions?

Have you ever asked your instructor to explain something differently because you did not get it?

Challenges

What are some of the hardest things about learning subjects in English? How do you get past them? Like, learning difficult terms in a Math subject?

Have you ever felt scared or worried when studying English? What strategies do you use to deal with such emotions?

Future Plans and How You See Yourself

Do you believe that studying topics in English will benefit you in the future? How?

How do you believe being multilingual will benefit you outside of the classroom?

Using Different languages

Do you utilize other languages (Kazakh, Russian, or Turkish) when you cannot understand anything in English? How can it benefit you?

Can you describe a moment when switching languages helped you better grasp something?

Қыздыру сұрақтары

Бүгінгі мектептегі күнің қалай өтті? Қандай қызықты сабақтар болды? Мектептегі сүйікті пәніңіз қандай және неге?

Тіл үйренуді ұнатасыз ба? Сізге қай тіл көбірек ұнайды?

Ағылшын тілінде оқу

Физика және математика сияқты тақырыптарды ағылшын тілінде оқуға қалай қарайсыз? Сізге мұны оңай немесе қиын деп санайсыз ба?

Сабақтың мазмұнын түсінбеген кезде не істейсіз? Сіз көмек сұрайсыз ба немесе оны өзіңіз шешуге тырысасыз ба?

Студент агенттігі және шешім қабылдау

Сабақта нені және қалай оқытыныңызды шешуде қаншалықты еркіндік бар? Мысал келтіре аласыз ба?

Сіз өзіңіздің оқу әдістемелеріңізді таңдайсыз ба, әлде мұғалімнің нұсқауларын орындайсыз ба?

Сіз мұғалімнен бір нәрсені түсінбегендіктен басқаша түсіндіруді сұрадыңыз ба?

Мотивация

Ағылшын тілінде оқытылатын тақырып қиын болса да, сізді талпынуға не итермелейді? Ағылшын тілінде бірденені түсінгенде қандай сезімде боласыз?

Қиындықтар

Ағылшын тілінде пәндерді үйренудің ең қиын тұстары қандай? Қалай өттіңіз сол қиындықтардан?

Мысалы, ағылшын тілінде күрделі математикалық терминдерді үйрену барысы.

Сондай бір қиындыққа тап болған кезіңізбен бөліссеңіз.

Ағылшын тілін үйренуге байланысты қобалжыған немесе күйзеліске түскен кезіңіз болды ма? Бұл сезімдерді басқаруға не көмектеседі немесе қандай шаралар қолдандыңыз?

Болашақ жоспарлар және сіз өзіңізді қалай көресіз

Ағылшын тілінде сабақтарды оқу болашақта сізге пайдалы болады деп ойлайсыз ба? Қалай?

Көптілді болу сізге сабақтан және мектептен тыс, бөлек жағдайда қандай пайда әкеледі деп ойлайсыз?

Әртүрлі тілдер қолдану

Ағылшын тілінде бірденені түсінбесеңіз, басқа тілдерді (қазақ, орыс, түрік) пайдаланасыз ба? Бұл сізге қалай көмектеседі?

Тілдер арасында ауысу бір нәрсені жақсырақ түсінуге көмектескен кездер болды ма?

Вопросы для разминки

Как прошел ваш день в школе сегодня?

Были ли у вас какие-нибудь веселые или интересные уроки?

Какой ваш любимый предмет в школе и почему?

Вам нравится изучать языки?

Какой язык вам нравится больше всего?

Обучение на английском языке

Как вы относитесь к изучению таких тем, как физика и математика на английском языке?

Вы находите это простым или сложным?

Что вы делаете, когда не понимаете содержание или же сам предмет?

Когда сталкиваетесь с трудностями, вы просите о помощи или пытаетесь решить их самостоятельно?

Студенческая активность и принятие решений

Насколько легко вам даётся принятие решений о том, что и как вы будете изучать на уроке?

Не могли бы вы привести пример?

Вы выбираете собственные методы обучения или следуете инструкциям учителя?

Вы когда-нибудь просили своего преподавателя объяснить тему по-другому, потому что вы не поняли его?

Мотивация

Что заставляет вас продолжать попытки, даже если тема, преподаваемая на английском, сложная?

Что вы чувствуете, когда можете понять что-либо на английском?

Проблемы.

Какие моменты из некоторых, самые сложные в изучении предметов на английском языке? Как вы справляетесь с этим? Например, изучение сложных терминов в предмете математики.

Вы когда-нибудь испытывали страх или беспокойство при изучении английского языка? Какие стратегии вы используете, чтобы справиться с такими эмоциями?

Планы на будущее и как вы себя видите

Как вы считаете, принесет ли изучение тем на английском языке вам пользу в будущем? Если ваш ответ «да», то как?

Как вы считаете, принесет ли многоязычие вам пользу за пределами класса?

Использование разных языков

Используете ли вы другие языки (казахский, русский или турецкий), когда не можете понять что-либо на английском? Какую пользу это может вам принести?

Можете ли вы описать момент, когда переключение языков помогло вам лучше что-либо понять?

Appendix C: Parental Consent Forms

PARENTAL INFORMED CONSENT FORM FOR RESEARCH INVOLVING CHILDREN

Introduction.

My name is Daulet Abrakhman. I am a student at Nazarbayev University. I want to invite your child to take part in my study.

Procedures. I want to ask students how they take charge of their own learning, specifically how they deal with difficulties while learning STEM subjects in English.

I will invite your child to an interview. I will ask your child to express their opinion about their learning process. Your child will be observed in the classroom twice as part of this study. No video recordings will be made for the observations or interviews, only audio recordings will be made for the interviews. Written notes will be taken.

Risks. The risks of participating in this study are minimal.

The risks might be connected to psychological discomfort of questions. Your child may always tell me if a question is difficult or they do not want to answer it. Your child can skip that question or stop the interview.

Your child may be concerned that the teacher will penalize the student for their answers with low marks. Because all information will be de-identified, it is highly unlikely that the teacher will be able to identify student responses. I will not share your child's answers with their classmates or teachers. Your child's answers will not affect their grades.

- Interviews will be coded and anonymized using pseudonyms
- No identifying information is linked to the students
- I will not quote in the final report any remarks that are very specific or unique to one student, which might make identification easier

Benefits. There are no personal benefits that your child will get from this study. However, your child's opinion may help develop the research about English language learning.

Compensation. There will be no compensation. You will be able to see the study results at the site of the NU Repository (<https://nur.nu.edu.kz/>).

Confidentiality. I will keep all information confidential. I will not use your real name or share any information about you. I will keep your answers on my computer and protect them with a password. Only I and my supervisor will have access to them. At the end of my research, I will delete the interview recordings/notes.

Voluntary Participation. Participation in this study is completely voluntary. You or your child may decide to quit the study at any time. There will be no penalty. Your child may choose to answer or skip questions. Your child also may stop the interview at any time.

Contacts. Contact me if you have any questions or comments about this study.

Phone: +7(705) 445-64-51
 Email: daulet.abdrakhman@nu.edu.kz

If you have any other questions or concerns, you may write to the Nazarbayev University Institutional Research Ethics Committee at resethics@nu.edu.kz.

Statement of Consent.

I, _____
 _____, Give my voluntary agreement to my child's participation in this study.
 The researcher clearly explained to me the information and aim of the study. I know what my child's participation in this study involves.

I understand that my child's participation in this study is voluntary. I can withdraw my consent anytime if I want my child to leave the study. I understand that this will not negatively affect my child.

I understand that the information collected during this study will be kept confidential. I give my permission to audio record the interview: Yes No

Signature: _____ Date: _____

Researcher:

Signed _____ Date _____

АТАЛАРДЫҢ БАЛАЛАРДЫ ҚАТЫСТЫРУҒА АҚПАРАТТЫ КЕЛІСІМ ФОРМАСЫ

Кіріспе.

Менің атым - Әбдірахман Даулет. Мен Назарбаев Университетінің студентімін. Мен сіздің балаңызды менің зерттеуіме қатысуға шақырғым келеді.

Процедуралар.

Мен студенттерден өз оқуларын қалай басқаратынын, әсіресе STEM пәндерін ағылшын тілінде оқу барысында қиындықтарды қалай жеңетінін сұрағым келеді. Зерттеу барысында сіздің балаңыз сұхбатқа шақырылады. Мен балаңыздан оқу үдерісі туралы өз пікірін білдіруін сұраймын. Балаңыз осы зерттеуге қатыса отырып, сыныпта екі рет бақыланады. Бақылау немесе сұхбаттар бейнежазбаға жазылмайды, тек сұхбаттардың аудиожазбалары жазылады. Жазбаша жазбалар да жүргізіледі.

Қауіптер.

Зерттеуге қатысудың қауіптері минималды. Қауіптер сұрақтарға байланысты психологиялық ыңғайсыздыққа қатысты болуы мүмкін. Егер сұрақ қиын немесе оған жауап бергісі келмесе, балаңыз маған әрқашан айта алады. Ол сұрақты өткізіп жіберуге немесе сұхбатты тоқтатуға болады.

Балаңыз мұғалім олардың жауаптарына төмен баға қоюы мүмкін деп алаңдауы мүмкін. Барлық ақпарат дерексізделеді, сондықтан мұғалімнің студенттің жауабын анықтау мүмкіндігі өте төмен. Мен балаңыздың жауаптарын сыныптастарына немесе мұғалімдеріне көрсетпеймін. Балаңыздың жауаптары оның бағасына әсер етпейді.

Сұхбаттар кодталып, псевдонимдер қолданылады. Оқушыларға қатысты ешқандай жеке ақпарат тіркелмейді. Мен қорытынды есепте белгілі бір студентті анықтауға мүмкіндік беретін ерекше немесе нақты ескертулерді келтірмеймін.

Пайдасы.

Бұл зерттеуден балаңызға ешқандай жеке пайда болмайды. Дегенмен, балаңыздың пікірі ағылшын тілін үйрену туралы зерттеулерді дамытуға көмектесуі мүмкін.

Өтемақы.

Өтемақы қарастырылмаған. Зерттеу нәтижелерін Назарбаев Университетінің репозиторий сайтында (<https://nur.nu.edu.kz/>) көре аласыз.

Құпиялылық.

Мен барлық ақпаратты құпия сақтаймын. Сіздің нақты атыңызды пайдаланбаймын және сіз туралы ешқандай ақпаратты бөліспеймін. Мен сіздің жауаптарыңызды компьютерімде сақтап, оларды құпия сөзбен қорғаймын. Тек мен және ғылыми жетекшім ғана қол жеткізе аламыз. Зерттеу соңында сұхбат жазбаларын жоямын.

Ерікті қатысу.

Бұл зерттеуге қатысу толығымен ерікті. Сіз немесе сіздің балаңыз зерттеуден кез келген уақытта бас тарта аласыз. Ешқандай жаза болмайды. Балаңыз сұрақтарға жауап беруді немесе өткізіп жіберуді таңдай алады. Балаңыз сондай-ақ сұхбатты кез келген уақытта тоқтата алады.

Байланыс.

Егер осы зерттеуге қатысты сұрақтарыңыз немесе пікірлеріңіз болса, маған хабарласыңыз.

Телефон: +7(705) 445-64-51

Электрондық пошта: daulet.abdrakhman@nu.edu.kz

Егер сізде басқа сұрақтар немесе мәселелер болса, Назарбаев Университетінің Институционалдық Зерттеу Этикасы Комитетіне resethics@nu.edu.kz мекенжайы бойынша хабарласа аласыз.

Келісім туралы мәлімдеме.

Мен, _____

_____, баламның осы зерттеуге қатысуына өз еркіммен келісімімді беремін.

Зерттеуші маған зерттеудің мақсаты мен ақпаратын түсіндірді. Мен зерттеуге баламның қатысуы нені қамтитынын білемін.

Менің баламның зерттеуге қатысуы ерікті екенін түсінемін. Егер баламды зерттеуден шығарып алғым келсе, кез келген уақытта өз келісімімді кері қайтара аламын. Бұл менің балама кері әсер етпейтінін түсінемін.

Зерттеу барысында жиналған ақпарат құпия түрде сақталатынын түсінемін.

Сұхбатты аудиожазбаға жазуға рұқсатымды беремін: Иә Жоқ

Қолы: _____ Күні: _____

Зерттеуші:

Қол қойылған _____ Күні _____

ФОРМА ИНФОРМИРОВАННОГО СОГЛАСИЯ РОДИТЕЛЕЙ НА УЧАСТИЕ ДЕТЕЙ В ИССЛЕДОВАНИИ

Введение.

Меня зовут Даулет Абдрахман. Я студент Назарбаев Университета. Я хочу пригласить вашего ребенка принять участие в моем исследовании.

Процедуры.

Я хочу узнать, как ученики берут на себя ответственность за свое обучение, в частности, как они справляются с трудностями при изучении предметов STEM на английском языке.

В рамках исследования я приглашу вашего ребенка на интервью. Я попрошу вашего ребенка выразить свое мнение о процессе обучения. В рамках исследования ваш ребенок будет дважды наблюдаться в классе. Видеозапись наблюдений и интервью проводиться не будет; будут сделаны только аудиозаписи интервью. Также будут сделаны письменные заметки.

Риски.

Риски участия в данном исследовании минимальны.

Риски могут быть связаны с психологическим дискомфортом от вопросов. Ваш ребенок может всегда сообщить мне, если вопрос сложен или он не хочет на него отвечать. Ваш ребенок может пропустить этот вопрос или прекратить интервью. Ваш ребенок может беспокоиться, что учитель снизит оценку за их ответы.

Поскольку вся информация будет обезличена, маловероятно, что учитель сможет определить ответы ребенка. Я не буду делиться ответами вашего ребенка с его одноклассниками или учителями. Ответы вашего ребенка не повлияют на его оценки.

Интервью будут кодироваться и анонимизироваться с использованием псевдонимов. Личная информация не будет связана со студентами.

Я не буду цитировать в итоговом отчете какие-либо высказывания, которые могут сделать идентификацию возможной.

Польза.

Ваш ребенок не получит личных выгод от этого исследования. Тем не менее, мнение вашего ребенка может помочь в развитии исследований по изучению английского языка.

Вознаграждение.

Вознаграждение не предусмотрено. Вы сможете увидеть результаты исследования на сайте Репозитория Назарбаев Университета (<https://nur.nu.edu.kz/>).

Конфиденциальность.

Я сохраню всю информацию в конфиденциальности. Я не буду использовать ваше настоящее имя или делиться какой-либо информацией о вас. Я сохраню ответы на своем компьютере и защищу их паролем. Только я и мой научный руководитель будем иметь к ним доступ. По окончании исследования я удалю записи интервью и заметки.

Добровольное участие.

Участие в данном исследовании полностью добровольное. Вы или ваш ребенок можете отказаться от участия в исследовании в любое время. Никаких последствий

не будет. Ваш ребенок может выбирать, на какие вопросы отвечать, или пропускать их. Ваш ребенок также может прекратить интервью в любой момент.

Контакты.

Свяжитесь со мной, если у вас есть вопросы или комментарии по поводу этого исследования.

Телефон: +7(705) 445-64-51

Электронная почта: daulet.abdrakhman@nu.edu.kz

Если у вас есть другие вопросы или беспокойства, вы можете обратиться в Институциональный комитет по этике исследований Назарбаев Университета по адресу resethics@nu.edu.kz.

Заявление о согласии.

Я, _____
_____, даю свое добровольное согласие на участие моего ребенка в этом исследовании. Исследователь четко объяснил мне информацию и цель исследования. Я знаю, что участие моего ребенка в этом исследовании включает.

Я понимаю, что участие моего ребенка в данном исследовании добровольное. Я могу отозвать свое согласие в любое время, если захочу, чтобы мой ребенок вышел из исследования. Я понимаю, что это не повлияет на моего ребенка негативно.

Я понимаю, что собранная в ходе исследования информация будет конфиденциальной. Я даю разрешение на аудиозапись интервью: Да Нет

Подпись: _____ Дата: _____

Исследователь:

Подпись: _____ Дата: _____

Appendix D: Student Assent Form

STUDENT ASSENT FORM

Hello. I am Abdrakhman Daulet. I am a student at Nazarbayev University. I invite you to take part in my study.

What is this study about?

This study looks at how students take charge of their own learning, specifically how they deal with problems and difficulties at school while learning STEM subjects in English.

What does this study involve?

Please discuss with your parents whether to participate. I will ask your parents to give their permission for you to take part in this study. But even if your parents say “yes,” you can still choose not to do this.

If you agree to be in this study:

- You will be observed during the class with your teachers and classmates up two times
- You might also be interviewed. The interview will be face-to-face. Interviews will be conducted in two languages (Kazakh, Russian) . You can choose a language which is more comfortable for you.
- Only you will be present in the interview. If you want to have your classmates during the interview, it is okay.

The interview will last for 20-30 minutes.

Are there any risks or discomforts from this study?

The risks of being in this study are minimal. There may be psychological discomfort with questions. You may always tell me if a question is difficult or if you do not want to answer it. You can skip that question or stop the interview.

You may fear that your teacher might recognize and punish you with low marks. Do not worry. I will not share your answers with your classmates or teachers. Your answers will not affect your grades.

Are there any benefits if I participate?

There will be no personal benefits to you. However, your opinion about learning STEM subjects in English and its challenges can be very helpful for learning more successfully for both them and future students. This will help develop research and teaching of STEM subjects in English in Kazakhstan.

Will I get any payment if I take part in this study?

There will be no payment for participation.

Will information about me and my participation be kept private?

I will keep all information private. I will not use your real name to keep it secret. I will not share any information about you. I will keep your answers on my computer and protect them with a password. Only I will have access to them. At the end of my research, I will delete the interview recordings/notes.

When can the researcher stop my participation?

If your parents do not want you to participate in research, then you have to drop out. It is because you are under the age of 18 and your parents are accountable for your involvement in the research.

What are my rights if I take part in this study?

You select whether or not to participate in the research. If you choose to participate in this research, you may leave at any time. There will be no consequence for this. You may choose not to answer the questions you do not like to answer and remain in the study.

Who can answer questions about this study?

Contact me if you have any questions, comments, or concerns about the study. Here is my contact information: daulet.abdrakhman@nu.edu.kz , phone number: +77718973349

If you want to ask questions or share any problems with someone other than me, please email IREC at resethics@nu.edu.kz.

SIGNATURE OF STUDY PARTICIPANT

I agree to take part in this study. I have been given a copy of this form.

Name of Participant

Signature of Participant

Date

SIGNATURE OF PERSON GETTING ASSENT

The participant voluntarily and knowingly agrees to participate in this study.

Name of Person Getting Assent

Contact Number

Signature of Person Getting Assent

Date

СТУДЕНТТИҢ КЕЛІСІМ БЕРУ ФОРМАСЫ

Сәлем. Менің атым Әбдірахман Дәулет. Мен Назарбаев университетінің студентімін. Сіздерді менің зерттеуіме қатысуға шақырамын.

Бұл зерттеу не туралы?

Бұл зерттеу студенттердің өз оқуы үшін жауапкершілікті қалай алатынын, атап айтқанда, STEM пәндерін ағылшын тілінде оқу кезінде мектептегі қиындықтар және қиындықтарды қалай жеңетінін зерттейді.

Бұл зерттеуге не кіреді?

Қатысу керек пе, жоқ па, ата-анаңызбен талқылаңыз. Мен сізден осы зерттеуге қатысу үшін ата-анаңыздан рұқсат сұраймын. Бірақ ата-анаңыз келісімін берсе де, сіз өз қалауыңызбен қатыспауыңызға болады..

Егер сіз осы зерттеуге қатысуға келісесіз:

- Сабақ барысында екі рет бақылау жүргізіледі, сіздің мұғаліміңізбен және сыныптастарыңызбен.
- Сондай-ақ сізден сұхбат алынуы мүмкін. Сұхбат бетпе-бет өтеді. Сұхбаттасу екі тілде (қазақ, орыс) жүргізіледі. Сіз өзіңізге ыңғайлы тілді таңдай аласыз. Сұхбат телефонға жазылатын болады.
- Сұхбатта сіз ғана қатысасыз. Сұхбатқа сыныптастарыңыз қасыңызда болғанын қаласаңыз, рұқсат.

Сұхбат 20-30 минутқа созылады.

Бұл зерттеудің қауіптері немесе ыңғайсыздықтары бар ма?

Бұл зерттеуге қатысудың тәуекелдері өте аз. Сұрақтарға байланысты психологиялық ыңғайсыздық туындауы мүмкін. Сұрақтар жауап беруге қиын немесе оған жауап бергіңіз келмесе, ескерте аласыз. Бұл сұрақты өткізіп жіберуге немесе сұхбатты тоқтатуға болады.

Мұғалім сізді танып, төмен бағамен жазалауы мүмкін деп қорқуыңыз мүмкін. Уайымдамаңыз. Жауаптарыңызды сыныптастарыңызбен немесе мұғалімдеріңізбен бөліспеймін. Жауаптарыңыз бағаларыңызға әсер етпейді.

Қатыссам қандай да бір пайда бар ма?

Бұл сізге жеке пайда әкелмейді. Дегенмен, сіздің STEM пәндерін ағылшын тілінде үйрену және оның қиындықтары туралы пікіріңіз болашақ студенттер үшін оқуды табысты етуде өте пайдалы болуы мүмкін. Бұл Қазақстанда STEM пәндерін ағылшын тілінде зерттеу мен оқытуды дамытуға көмектеседі.

Осы зерттеуге қатысса, мен қандай да бір төлем аламын ба?

Қатысушыға ешқандай ақы төленбейді.

Мен және қатысуым туралы ақпарат құпия бола ма?

Мен барлық ақпаратты құпия сақтаймын. Мен оның құпиясын сақтау үшін сіздің шын атыңызды қолданбаймын. Мен сіз туралы ешқандай ақпаратпен бөліспеймін.

Мен сіздің жауаптарыңызды компьютерімде сақтаймын және оларды құпия сөзбен қорғаймын. Тек менде ғана көре аламын.. Зерттеуім аяқталғаннан кейін сұхбат жазбаларын жоямын.

Зерттеуші менің қатысуымды қашан тоқтата алады?

Егер сіздің ата-анаңыз сіздің зерттеуге қатысуыңызды қаламаса, одан бас тартуыңыз керек. Себебі сіздің жасыңыз 18-ге толмаған және сіздің зерттеуге қатысуыңызға ата-анаңыз жауапты.

Осы зерттеуге қатысатын болсам, менің құқықтарым қандай?

Зерттеуге қатысу-қатыспауды өзіңіз таңдайсыз. Егер сіз осы зерттеуге қатысуды шешсеңіз, кез келген уақытта бас тарта аласыз. Мұның ешқандай артық салдары болмайды. Кейбір жауап бергініз келмейтін сұрақтарға жауап бермесеңізде, осы зерттеуде қалуыңызға болады.

Бұл зерттеуге қатысты сұрақтарға кім жауап бере алады?

Зерттеуге қатысты сұрақтарыңыз, пікірлеріңіз немесе сұрақтарыңыз болса, маған хабарласыңыз. Міне, менің байланыс деректерім: daulet.abdrakhman@nu.edu.kz, телефон нөмірі: +77718973349

Менен басқа біреуге сұрақ қойғыңыз келсе немесе қандай да бір алаңдаушылықтарыңызбен бөліскіңіз келсе, IREC-ке resethics@nu.edu.kz электрондық поштасына жіберіңіз.

ФОРМА СОГЛАСИЯ СТУДЕНТА

Здравствуйте. Меня зовут Абдрахман Даулет. Я студент Назарбаев Университета. Я приглашаю вас принять участие в моем исследовании.

О чем это исследование?

В этом исследовании рассматривается, как студенты берут на себя ответственность за свое обучение, в частности, как они справляются с проблемами и трудностями в школе при изучении предметов STEM на английском языке.

Что включает в себя это исследование?

Пожалуйста, обсудите с родителями, стоит ли вам участвовать. Я попрошу ваших родителей дать разрешение на ваше участие в этом исследовании. Но даже если ваши родители скажут «да», вы все равно можете отказаться от этого.

Если вы согласны участвовать в этом исследовании:

- Во время занятий вас будут наблюдать два раза вместе с учителями и одноклассниками
- С вами также могут провести собеседование. Собеседование будет проходить лицом к лицу. Собеседования будут проводиться на двух языках (казахский, русский). Вы можете выбрать язык, который вам удобнее. Интервью будет записано по телефону
- На собеседовании будете присутствовать только вы. Если вы хотите, чтобы на собеседовании присутствовали ваши одноклассники, это нормально.
- Собеседование продлится 20–30 минут.

Есть ли какие-либо риски или неудобства от этого исследования?

Риски участия в этом исследовании минимальны. Может возникнуть психологический дискомфорт из-за вопросов. Вы всегда можете сказать мне, если вопрос сложный или вы не хотите на него отвечать. Вы можете пропустить этот вопрос или остановить собеседование.

Вы можете бояться, что ваш учитель может узнать вас и наказать низкими оценками. Не волнуйтесь. Я не поделюсь вашими ответами с вашими одноклассниками или учителями. Ваши ответы не повлияют на ваши оценки.

Есть ли какие-либо преимущества, если я приму участие?

Лично вам это не принесет никакой выгоды. Однако ваше мнение об изучении предметов STEM на английском языке и его трудностях может быть очень полезным для более успешного обучения для будущих студентов. Это поможет развить исследования и преподавание предметов STEM на английском языке в Казахстане.

Получу ли я какую-либо оплату, если приму участие в этом исследовании?

Оплата за участие не взимается.

Будет ли информация обо мне и моем участии конфиденциальной?

Я сохраню всю информацию в тайне. Я не буду использовать ваше настоящее имя, чтобы сохранить ее в тайне. Я не буду делиться никакой информацией о вас. Я буду хранить ваши ответы на своем компьютере и защищать их паролем. Только я буду иметь к ним доступ. По окончании моего исследования я удалю записи интервью/заметки.

Когда исследователь может остановить мое участие?

Если ваши родители не хотят, чтобы вы участвовали в исследовании, то вы должны отказаться от него. Это связано с тем, что вам еще не исполнилось 18 лет, и ваши родители несут ответственность за ваше участие в исследовании.

Каковы мои права, если я приму участие в этом исследовании?

Вы выбираете, участвовать в исследовании или нет. Если вы решите участвовать в этом исследовании, вы можете выйти в любое время. Это не будет иметь никаких последствий. Вы можете не отвечать на вопросы, на которые вам не нравится отвечать, и остаться в исследовании.

Кто может ответить на вопросы об этом исследовании?

Свяжитесь со мной, если у вас есть какие-либо вопросы, комментарии или опасения по поводу исследования. Вот мои контактные данные: daulet.abdrakhman@nu.edu.kz, номер телефона: +77718973349

Если вы хотите задать вопросы или поделиться какими-либо проблемами с кем-то, кроме меня, отправьте электронное письмо в IREC по адресу resethics@nu.edu.kz.

Appendix E: Data Analysis – Sample of Interview Transcript

Interviewer: Hello, _____. Welcome to today's interview. Could you tell us how your day went, any interesting moments, and which lessons you had?

Interviewee: Today went well. In the morning, I was taking an Olympiad. But after I finished, there was a mistake: I was supposed to take the 10th-grade Olympiad, but they gave me the 11th-grade one, so I had to retake it. After that, together with the parliament, we held an event.

Interviewer: What's your favorite subject in school?

Interviewee: My favorite is chemistry.

Interviewer: Chemistry? Why?

Interviewee: Because chemistry is a very interesting subject. It also encompasses several fields. For example, by knowing chemistry, you also understand mathematics, and so on.

Interviewer: Do you enjoy learning languages? Which languages do you like the most?

Interviewee: I don't think I enjoy learning languages, except maybe English. I'm not sure why, but learning languages is very difficult for me. For instance, in our school, besides English, we also learn Turkish. It's very hard for me to learn it, even though it's somewhat similar to Kazakh.

Interviewer: So, it's harder for you to learn languages than chemistry?

Interviewee: Probably, yes, it's harder for me to learn languages. Or maybe I just don't have the motivation or something pushing me towards it. For example, I needed English and had a reason to learn it. But with Turkish, I feel like I don't have a particular reason to study it.

Interviewer: You're studying subjects like mathematics and physics in English. How do you feel about that? Negatively or positively?

Interviewee: I think it's great because when you study them in English, you understand the subject itself and additionally improve your English.

Interviewer: Is it easy or difficult for you?

Interviewee: It's easy for me.

Interviewer: So, you don't experience any difficulties with this? For example, in chemistry?

Interviewee: No, I've probably gotten used to it since the 7th grade. If I were given a choice now to study biology in Kazakh or English, I would still choose to study it in English.

Interviewer: When you first came here in the 7th grade, did you have any difficulties studying subjects in English?

Interviewee: Well, starting from the 7th grade, I knew that lessons here were conducted in English. So, I studied English before enrolling in this school. And even after I enrolled, I attended classes and additionally took English courses. That's why I got used to it. Also, in the 7th grade, during the first two terms, all lessons were still conducted in Russian and Kazakh.

Interviewer: So, you didn't have any particular difficulties in this regard?

Interviewee: No, I didn't.

Interviewer: For instance, if there was a moment when you didn't understand a lesson, what did you do? Did you approach the teacher, or did you not have such moments at all?

Interviewee: Well, at first, of course, I didn't immediately grasp the topics, but I resolved everything on my own. I would study, study, and eventually get used to it

Interviewer: Do you ask the teacher to explain the topic again or differently because you didn't understand it?

Interviewee: Well, recently I missed two weeks of classes because I was at a competition. During that time, I fell behind in algebra compared to my classmates. That's when I asked the teacher to explain the lessons, and he explained them to me.

Interviewer: Do you also ask your classmates or desk partners during lessons?

Interviewee: Yes, of course. Usually, this happens on weekends because my friends and I sometimes organize study sessions. We gather and study together. Last time, I asked my friend to explain algebra to me. But later, I still asked the teacher again.

Interviewer: So, when you don't understand a lesson, your strategy is to ask the teacher immediately. Let's imagine a situation where you didn't understand the teacher and the lesson. What strategy do you use to understand the topic? For example, if it were "Not asking the teacher."

Interviewee: For example, if I can't ask the teacher and didn't understand the lesson or topic, I go home, open the book, and study the topic. Sometimes, I watch videos on YouTube.

Interviewer: What motivated you to study English despite its difficulties?

Interviewee: Well, since childhood, my mother told me to study English and study in general because I was a girl from a village. When I came here, I started studying English hard. I also had a very good teacher when I came here. He told me to study English, and he would send me to the Olympiad later. And then, in the seventh grade, I really went to the Olympiad, but it was for eleventh graders. I went there purely out of interest.

Interviewer: So, your motivation was influenced by your parents and teachers?

Interviewee: No, in general, I realized in the seventh grade that in the tenth grade, English would be very, very necessary for me, so I studied.

Interviewer: How much has your motivation changed from then until now? Are there any changes in general?

Interviewee: Yes, it has changed a lot. For example, in the seventh grade, my level was very low. Now, I have raised this level, and each time I understand English more and more, I have a feeling as if I already know it, and why should I study it further. My views have changed.

Interviewer: So, you had motivation back then, and now you just realize that English is important to study more.

Interviewee: Yes, I understand that it is important, but I still can't dedicate special time to it as I did in the seventh grade.

Interviewer: When the teacher explained a lesson, for example, physics or mathematics in English, and you understood what he was saying, how did you feel? Did you feel proud that you understood the lesson?

Interviewee: Well, in general, at that time, it was very difficult for me to understand mathematics and algebra. And when I understood it in English, I felt very good at that moment. It was cool.

Interviewer: Are there specific lessons where it's difficult for you to study in English, for example, studying certain terms and so on?

Interviewee: It still depends on the level of English. If you have a low level of knowledge, it will definitely be difficult for you. And if you studied the subject in Russian or Kazakh and didn't understand it well, studying it in English will be even more difficult. Because you don't understand the language, and you don't understand the topic at all.

Interviewer: Have you ever felt nervous or anxious when speaking in English, thinking that you might make a mistake?

Interviewee: I was nervous speaking. And I also felt like if I spoke English with others, it would seem like I was showing off.

Appendix F: Data Analysis – Coding Samples

Extract	Open Code	Category
"Maybe I couldn't quickly immerse myself in the lessons because I recently missed classes due to illness."	Health-related difficulties	Academic Challenges
"Some terms are complex. You need to learn and always review them because during lessons, when those words appear, you might not know them."	Difficulty with complex terms	Academic Challenges
"Our teachers explain things very well. Even if you don't understand something... they'll help you."	Good teacher explanations	Teacher Support
"If I don't understand a topic, I ask the teacher to explain it in Kazakh or Russian."	Asking for translations	Teacher Support
"My mom enrolled me with a tutor in third grade, and we started intensely studying grammar and reading."	Parental encouragement	Language Learning Motivation
"When I see different videos in English in my recommendations, I become interested."	Motivation from media and social apps	Language Learning Motivation
"Currently, my favorite language is English."	Favorite language to learn	Language Learning Motivation
"I go to Google and search for answers. I also use ChatGPT and YouTube to watch video lessons."	Using technology for learning	Self-Learning Strategies
"Since childhood, I've been used to associating words with something, and it makes it easier for me to remember them that way."	Learning biology terms through association	Self-Learning Strategies
"I started actively studying chemistry and biology in the seventh grade. That's when I decided I would choose medicine as my future profession."	Career goals in medicine	Personal Aspirations
"Knowing many languages feels like a dream for me."	Dream of multilingualism	Personal Aspirations

"I have a dream of traveling. Visiting one country is like reading one book."	Traveling and cultural exploration	Personal Aspirations
"During conversations, I couldn't even form three words properly, which made me nervous. To fix this, I started having my own conversations with myself."	Nervousness in speaking	Overcoming Challenges
"As long as I live, English will never leave me, because knowing English makes it easy to communicate with other foreigners and even learn other languages too."	Benefits of English for life and career	Language Learning Motivation
"There's also a theory that visiting one country is like reading one book. It's probably because when you visit a country, you learn its history and facts."	Languages as a gateway to culture and travel	Personal Aspirations
