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Title: Content and language integrated learning in Kazakhstan : A scoping review

Year: 2024

Version: Accepted version (Final draft)

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Please cite the original version:

Content and language integrated learning in Kazakhstan: A scoping review

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Abstract

This study is a scoping review of research conducted on Content and Language Integrated Learning (CLIL) in Kazakhstan. A total of 26 studies were selected, including journal articles and master's theses. The selected studies were thematically analyzed to identify key aspects and shared aspects. Three main thematically organized areas for CLIL research emerged from the reviewed studies: (1) Dominant perceptions and beliefs about CLIL, (2) Positive outcomes and challenges in CLIL, and (3) CLIL pedagogy and methodology. The majority of the reviewed studies primarily focused on students' English language skills, investigated the affective and cognitive experience of CLIL, and addressed challenges, practices, and concerns related to CLIL. These themes capture the current landscape of CLIL research in Kazakhstan and contribute to a more holistic understanding of CLIL's impact on language acquisition and educational practices, thereby informing approaches to language education in Kazakhstan's trilingual education system.

Keywords: CLIL, Kazakhstan, thematic analysis, trilingual education

Introduction

Content and Language Integrated Learning (CLIL) is an educational approach that involves teaching the academic content of curricular subjects, like mathematics or geography, through a second, foreign, or additional language (Coyle et al., 2010). Its main objective is to develop students' language proficiency as they acquire knowledge and skills in various academic disciplines (Mehisto et al., 2008). Rather than treating language as a separate subject, CLIL promotes language learning as a means to access and comprehend subject-specific information. In a CLIL classroom, teachers use the target language as the primary medium of instruction, enabling students to engage with discipline-specific subject matter and meaningfully communicate in the foreign language (Kewara & Prabjandee, 2018; Lasagabaster & Sierra, 2010; Lopriore, 2020). This dual focus has given rise to language-driven (e.g., Chumbay & Ochoa, 2020) and content-driven (e.g., Villabona & Cenoz, 2022) forms of CLIL, depending on educational context and goals. Regardless of these forms, however, CLIL encourages the use of authentic materials (Wolff, 2003), the use of various language support strategies (Mahan, 2022), differentiated instruction (Roiha, 2014), versatile assessment methods and bifocal feedback (DeBoer & Leontjev, 2020), and collaborative planning (Wilkinson, 2018).

Numerous studies suggest CLIL is effective in developing students' language skills, content knowledge, and cognitive skills (Lasagabaster & Beloqui, 2015; Martín de Lama, 2015). For instance, CLIL students develop their language skills as they actively use the language to understand and express concepts related to the content areas (Dalton-Puffer, 2013). Additionally, CLIL students develop cognitive, critical thinking, and problem-solving skills as they process information in the target language and apply it to various academic tasks (Dalton-Puffer, 2013; Harrop, 2012). CLIL students also report increased motivation and engagement, as they see the practical relevance and applicability of language learning in real-world contexts (Doiz et al., 2014). Finally, CLIL students develop intercultural awareness and global perspectives by engaging with diverse subject matter through a different linguistic and cultural lens (Doiz et al., 2014). CLIL as a methodology encouraging international cooperation and global education has not only made CLIL one of the important pillars of European education policy (King, 2018), but also an international phenomenon in bilingual education.

There has recently been a growing trend in some Asian nations, such as China (Lo & Lin, 2015; Wei & Feng, 2015) and Kazakhstan (Satayev, Balta et al., 2022; Satayev, Barrios et al., 2022), towards the implementation of CLIL, with governments actively supporting and promoting this educational approach. The Republic of Kazakhstan was one of the first countries in the post-Soviet region to adopt CLIL as a teaching pedagogy for various subjects, and it is currently leading CLIL implementation in Central Asia (Parra & Abdiyeva, 2021). This is due to the significant educational shifts and changes that happened after gaining independence from the Soviet Union in 1991, particularly in terms of educational methodologies (Mahon & Murphy, 2019). Recognizing the importance of multilingualism in the globalized world, the government introduced a comprehensive national language-in-education policy promoting the use of Kazakh, Russian, and English languages in schools. This policy made Kazakhstan the first country in the region to adopt such an approach, and made trilingualism a significant aspect of Kazakhstan's educational culture. It also laid the foundation for CLIL implementation in Kazakhstan, which gained momentum during the period of trilingualism in schools (2000–2019) (Karabassova, 2020). Pilot schools began implementing trilingual education in 2006 and a network of specialized institutions, such as

the Nazarbayev Intellectual Schools, Bilim Innovation Lyceums, and Schools with Trilingual Education, has been established across the country to support this endeavor.

This study reviews research done on CLIL in Kazakhstan with the aim to provide an informed picture of CLIL in a non-European educational context with increasing CLIL popularity. The study is guided by the following research question: What does national CLIL research show about CLIL in practice in Kazakhstan? Answering this question will further help to identify research gaps specific to the Kazakhstani context, thus enabling scholars to contribute new insights and knowledge in future. This review holds additional significance for international researchers, as it offers a unique perspective on CLIL implementation in a distinct cultural and linguistic setting, fostering cross-cultural understanding and the exchange of best practices.

CLIL beyond Europe

CLIL has been widely implemented and researched in Europe. Empirical evidence from European educational contexts supports egalitarianism in CLIL, establishes the positive effects of CLIL on language and content learning alike, and counters the debate over the CLIL-EFL divide (Pérez-Cañado, 2023). However, comparatively fewer studies have been conducted in non-European contexts, where educational circumstances and needs may differ.

In the Middle East, CLIL has gained attention as a means to enhance English language and math-science proficiency. In Saudi Arabia, Aburizaizah (2013) found that both content teachers and English teachers expressed a positive attitude towards using CLIL, whereas students expressed concerns about the additional learning requirements CLIL entails. Their study stressed the significance of establishing clear goals for the foundation year and providing teacher training on implementing CLIL. In Turkey, Metli and Akış (2022) showed that teachers doing CLIL faced multiple difficulties, including limited vocabulary, translation issues, and inadequate foundational knowledge. To address these challenges, they employed effective techniques, such as facilitating group work, implementing interdisciplinary activities, providing personalized feedback, fostering higher-order thinking skills, engaging in inquiry-based learning, and reinforcing language use.

In Asia, CLIL has gained attention as a way to enhance English language proficiency. In China, Hu et al.'s (2023) review found that most studies focused on higher education, used English as the primary language of instruction, and covered a wide range of subject areas. Their study primarily emphasized affective aspects like perceptions of CLIL and language learning outcomes, and suggested that other topics, such as assessment, translanguaging, and learning materials, received less attention. In Taiwan, Kao's (2022) study revealed that pre-service teachers faced challenges in applying suitable English teaching approaches to enhance their students' communicative competence through CLIL. The outcomes of the examined CLIL intervention indicated an improvement in students' reading and listening skills. In Hong Kong, Lo et al.'s (2018) observations of CLIL lessons suggested teachers incorporate language scaffolding techniques into their science classes. The samples of students' work and teachers' reflections indicated the effectiveness of CLIL materials in facilitating the development of science literacy among students.

CLIL has gained popularity in South America, particularly in Brazil, with research showing positive results concerning language learning motivation and intercultural communicative competence, but mixed results concerning supporting language learning and cognitive development (Banegas, 2022). CLIL has also been implemented and researched in

Africa and Australia. For example, in Zambia, Nchindila (2017) analyzed the Grade 7 pass rates in Zambian languages, English, mathematics, and science subjects after CLIL implementation. The findings revealed that the pass rates for all subjects were generally low, with urban schools performing better than rural schools. Pass rates in English were slightly higher than those in Zambian languages, mathematics, and science. Based on the higher pass rates in English, the study argued that teachers may have not effectively integrated English into content teaching. In Australian education, Turner (2013) highlighted the need for careful evaluation of certain aspects of CLIL before its implementation. The author argued for the potential of public bilingual education programs in Australian primary and secondary education to address issues like high attrition rates and the decline in language instruction. Challenges related to applying and expanding the CLIL approach in mainstream Australian education included English language dominance, language selection, and availability of human resources.

These studies highlight the versatility and flexibility of CLIL as a bilingual educational approach, and demonstrate the applicability of CLIL in various countries, cultures, and contexts. CLIL may have a positive impact on language proficiency, content learning, intercultural competence, and bilingualism. However, it is important to consider context-specific factors and adapt CLIL to suit the specific needs and goals of learners in different educational settings. To facilitate this in future, this review presents the current educational landscape of CLIL in Kazakhstan through a scoping review.

Methods

Search strategies and inclusion criteria

The review was conducted by searching for relevant literature on four electronic databases, namely Google Scholar, Education Resources Information Center, SCOPUS, and Web of Science. We used a search string comprising Boolean operators and the terms "CLIL," "Content and language integrated learning," and "Kazakhstan." Each database was searched on separate occasions between March 9, 2023 and March 16, 2023.

CLIL was introduced by the Ministry of Education and Science of Kazakhstan as an innovative educational approach and was officially integrated into the Kazakhstan curriculum in 2008. However, our database search revealed that the first publications specifically focusing on CLIL in Kazakhstan were published after 2017. Therefore, this review includes studies published between January 2017 and December 2022.

At the very initial stage, 384 studies were retrieved. Eligible studies were journal articles, conference proceedings, theses, and dissertations that specifically examined the implementation of the CLIL approach within educational settings in Kazakhstan ranging from primary to higher education. No restrictions were placed on the language of instruction or the geographical location of the studies. However, it was necessary for the studies to be written in English and have a clear peer-reviewed status, as the peer review process is a valuable criterion for ensuring methodological rigor. Applying these inclusion criteria to the retrieved items resulted in 26 studies that were selected for further review (see Figure 1). These items comprised 23 journal articles and 3 master's theses.

The third and fourth authors coded the selected studies for the following details: author(s), year of publication, type of publication, and publication details; study design, construct measured, and instrument used; participants, duration of CLIL implementation, curricular subject(s), and school level; and students' challenges, teachers' challenges,

operational challenges, and major findings. In case of any disparities when coding the data, the authors jointly reviewed the selected studies to reach a consensus. This information helped to categorize the selected studies and contextualize our findings. Figure 1 illustrates the search process and outcomes.
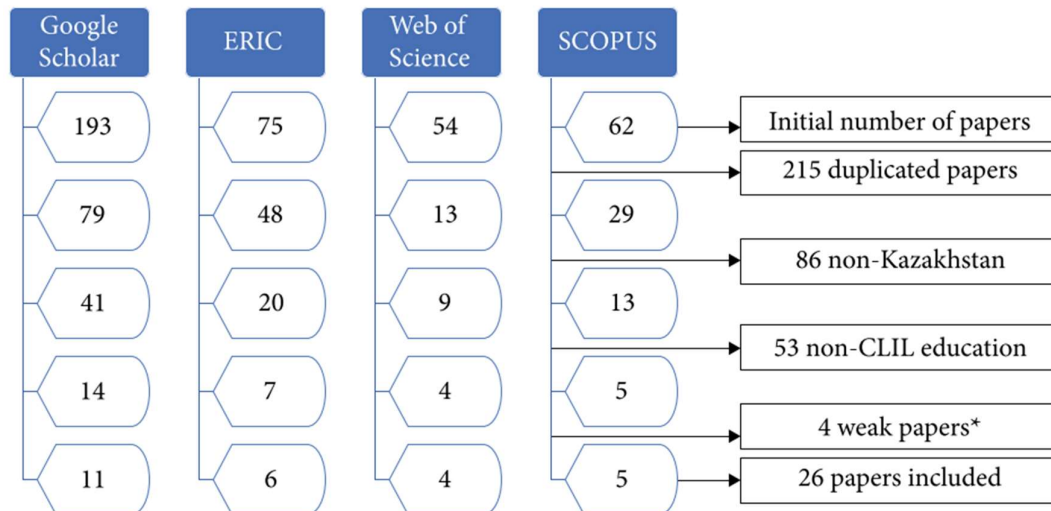

Figure 1. Database search results
* Weak papers were those that did not have strong research design and analyses.

Data analysis
We thematically organized the findings of the selected studies. Thematic analysis allowed us to identify, examine, and present recurring patterns (known as themes) within collected information (Braun & Clarke, 2006). Initially, we organized the studies according to the research focus suggested by their title and their reported research aims or research questions. Then, we systematically coded the findings of each article across the entire article in an inductive manner. These codes were organized into minor themes per article. These minor themes were later used to develop subthemes denoting connections among the articles, e.g., Positive outcomes of CLIL education, and Challenges in CLIL education. Finally, these subthemes were joined under overarching themes representing particular research foci. Three overarching themes were finally developed related to CLIL implementation in Kazakhstan: (1) Dominant perceptions and beliefs about CLIL, (2) Positive outcomes and challenges in CLIL, and (3) CLIL pedagogy and methodology. These themes are presented in the following section.

Findings

Key characteristics of the reviewed studies
Except for Shabdenova's (2021) and Em's (2021) master's theses, the reviewed items were journal articles. Only four studies employed experimental design. The sample size ranged from five (Kakanov, 2017; Karabassova, 2018; Karabassova, 2022a) to 275 (Karabassova & San Isidro, 2020) participants. CLIL was implemented online in four studies (Em, 2017; Kuzembayeva et al., 2022; Nurdillayeva et al., 2021; Shabdenova, 2021).

Of the 26 studies conducted on CLIL implementation in Kazakhstan, 15 were conducted at primary (N= 1) and secondary (N =14) schools, and 11 were conducted at universities. Some studies examined CLIL methods used in inorganic chemistry, math, and English language lessons, while others considered CLIL in social and natural sciences. Almost all the reviewed studies used different qualitative and quantitative research methods, including questionnaires, case-studies, observations, and semi-structured interviews. Most of the reviewed studies centered on teachers' and students' attitudes, perceptions, experiences, opinions, interest, anxiety, self-esteem, challenges, motivation, and preferences related to CLIL. Other research objectives included the effectiveness of the CLIL methods used in Kazakhstani educational institutions. For an overview of the reviewed studies, please see the appendix.

The results of our thematic analysis suggested the majority of the reviewed studies claimed that the implementation of CLIL is quite effective, resulting in students' and teachers' positive attitude towards CLIL. The reviewed studies supported the efficacy of CLIL in promoting language learning, and argued that creating appropriate conditions would enhance the learning process. However, nearly half of the reviewed studies claimed that, in practical terms, the didactic design and teaching structure of CLIL lessons were similar to traditional native language (L1) lessons, where the main focus was on teaching content rather than additionally integrating language instruction. These studies also stressed that the mechanisms for implementing CLIL have not been systematically organized and need further improvement.

Main concerns regarding CLIL education in Kazakhstan

Kazakhstan's CLIL educational landscape, explored through a collection of 26 studies, revolves around the implementation and impact of CLIL. Originating in the 1990s, CLIL has evolved from a tool to enhance language skills to a complex construct involving translanguaging and curriculum integration. The reviewed studies delve into students' and teachers' perceptions concerning CLIL, emphasizing the role of beliefs and attitudes in successfully adopting or implementing CLIL. Moreover, the body of research done paints a dynamic and evolving picture of CLIL education in Kazakhstan. It celebrates the successes and innovations brought about by CLIL but also sheds light on the persistent challenges that demand continuous attention and improvement. As Kazakhstan navigates its educational landscape, CLIL stands as a crucial and adaptable tool in shaping a vibrant and inclusive future for CLIL education in the country. This section elaborates on the main concerns and research areas identified in the reviewed CLIL research conducted in Kazakhstan.

Dominant perceptions and beliefs about CLIL

The perceptions and beliefs of various stakeholders play a significant role in understanding the implementation and effectiveness of CLIL. This theme includes the perspectives of students and teachers, shedding light on their intentions and attitudes towards CLIL. Investigating their perceptions and responses to CLIL methodologies, these articles provide valuable insights into how students engage with CLIL and their understanding of its benefits, as well as teachers' cognitive and emotional response to CLIL.

Students' perceptions
Students' perceptions of CLIL have been a subject of investigation in two studies. Satayev, Barrios et al. (2022) found that students' perceptions of content learning in CLIL programs

generally improved. However, variations were observed based on factors like academic program, year group, and previous CLIL experience. Akbarov et al. (2018) reported moderate enhancements in university students' English competencies and positive attitudes toward British and American culture through CLIL. Additionally, students' English proficiency levels were found to influence their satisfaction and preferences for CLIL-based math classes, although math grades did not show a significant correlation with satisfaction/preferences or difficulties encountered in CLIL-based math classes.

Teachers' perceptions
Teachers' perceptions were examined by seven studies. Karabassova and San Isidro (2020) investigated teachers' perceptions of translanguaging as a scaffolding strategy in CLIL classrooms. While CLIL teachers aimed for exclusive use of the target language, they acknowledged the importance of code-switching as a natural part of classroom interactions. These teachers viewed translanguaging as a temporary solution, gradually reducing its use over time, and emphasized the importance of students having a strong command of the target language. Kakenov (2017) highlighted that teachers recognized the benefits of CLIL for simultaneous content and language learning. However, some teachers had mixed attitudes due to challenges faced by low-proficiency students in language development and content comprehension. Vocabulary learning was identified as a crucial aspect of CLIL lessons. Shabdenova (2021) highlighted the experiences of STEM teachers who observed several benefits from implementing CLIL in their classrooms.

These benefits included increased student motivation, enhanced prospects for academic success, and the development of improved pedagogical skills among teachers. In university settings, Vitchenko (2017) noted that despite challenges such as training and limited resources, teachers viewed the introduction of CLIL in universities as a potential improvement. Teachers expressed strong beliefs and willingness to participate in CLIL programs, with a positive correlation between interest and professional competence.

In addition to the perceptions and beliefs teachers held towards CLIL, some of the reviewed literature explored teachers' emotional response to CLIL instruction. Maximova (2020) highlighted science teachers' perceptions of pre-service training and challenges in CLIL classrooms. The study found that teachers initially experienced high levels of anxiety and low self-esteem related to CLIL, but significant improvements were observed after completing the training, indicating a positive shift in their attitudes towards CLIL. Dontsov and Burdina (2018) also reported initial anxiety and low self-esteem among teachers, along with predominantly extrinsic motivation. However, after completing the course, participants showed increased self-confidence, command of the English language, and readiness to use CLIL in teaching. Similarly, Kydyrbayeva et al. (2021) examined pre-service teachers' self-efficacy levels in providing trilingual education and teaching with CLIL principles. This study found that as the grade level pro-ressed, pre-service teachers' self-efficacy increased. Female pre-service teachers showed higher self-efficacy in providing trilingual education, while male preservice teachers exhibited higher self-efficacy in teaching with the CLIL approach.

Nonetheless, a significant number of teacher candidates still perceived themselves as lacking competence in these areas. Kuzembayeva et al. (2022) found that while teachers generally had a positive perception of inclusive education, there was controversy regarding whether it primarily targeted academically high-performing students. However, positive perceptions of CLIL in remote learning were evident, with an emphasis on student interaction, highlighting the need to address challenges related to resources and teacher training.

Positive outcomes and challenges in CLIL

This theme captures the positive outcomes and challenges of CLIL concerning students, pre-service teachers, in-service teachers, and teacher education or professional training. The studies under this theme sought to uncover whether students harbor positive attitudes towards CLIL or face challenges in their learning experiences. By exploring students' subjective perspectives, these articles contribute valuable insights into the factors influencing students' perceptions of CLIL, offering a nuanced understanding of their overall attitudes toward this innovative pedagogical approach. Moreover, these studies collectively emphasize CLIL as a valuable approach and underscore the importance of language proficiency, material development, teacher training, and instructional support for successful implementation.

Positive outcomes of CLIL education

Several studies explored the outcomes of CLIL education for students and teachers alike. Concerning positive outcomes for students, Huertas Abril and Shashken (2021) found that CLIL increased student interest, offered diverse task types, and integrated subject knowledge with language. Yesmuratova and Shayakhmetova (2021) reported that students perceived CLIL as an effective method for enhancing language skills and generating interest in subjects. Additionally, Shabdenova (2021) identified increased student motivation, enhanced prospects for success, and improved pedagogical skills as benefits of engaging in CLIL. In higher education, Nurdillayeva and Zhuman (2021) noted the increased student interest in studying through CLIL, while Satayev, Balta et al. (2022) demonstrated that combining a CLIL approach with formal language instruction had a positive impact on university students' grammar and listening skills.

Concerning positive outcomes for teachers, Shabdenova (2021) observed inservice teachers' improved pedagogical skills resulting from CLIL implementation. Omarbekova's study (2020), on the other hand, indicated that some teachers expressed interest in pursuing degrees in other subjects, suggesting professional growth opportunities. However, Mehisto et al. (2022) identified the need for better alignment, clarity, and integration of CLIL principles in professional development programs. Additionally, Maximova (2020) underscored pre-service teachers' need to address language barriers, resource limitations, and provide better preparation for bilingual classrooms in teacher education programs.

Challenges in CLIL education

Alongside positive outcomes, various challenges were identified in CLIL practice. Yesmuratova and Shayakhmetova (2021) highlighted limitations associated with students' own language proficiency in CLIL classrooms. Karabassova (2018) revealed limitations in student interaction, speaking opportunities, and classroom management in CLIL classes.

Concerning in-service teachers, Huertas Abril and Shashken (2021) identified weaknesses such as limited mastery, insufficient teaching materials, and a lack of guidelines and internal motivation. Shabdenova (2021) reported challenges including low English proficiency, online learning limitations, inadequate CLIL training, rapid policy implementation, and a lack of teaching materials. Omarbekova's study (2020) found challenges related to a lack of appropriate materials, time-consuming preparation, limited technology programs, and insufficient subject knowledge among in-service teachers. In Em's (2021) study, CLIL teachers expressed dissatisfaction with the inadequate training they received for CLIL programs, leading to knowledge gaps and potential limitations in their instructional practices for

inclusive education. Language-related difficulties were identified as significant challenges for both teachers and students, with teaching students with special educational needs in an inclusive CLIL classroom posing additional complexities.

Pre-service teachers face their own set of challenges. Maximova (2020) stated a shortage of English-proficient teachers and a lack of resources in pre-service teacher education programs. In the context of teacher education and professional training, Mehisto et al. (2022) pointed out coherence issues, limited focus on CLIL, and the need for better alignment and integration of CLIL principles in professional development programs. Karabassova's study (2022b) revealed that teachers faced challenges due to insufficient English language proficiency, lack of control, and limited awareness of CLIL pedagogy in a large-scale CLIL initiative. Similar challenges were also noted in early CLIL studies that did not primarily examine CLIL outcomes (e.g., Golovchun et al., 2017; Kakenov, 2017; Karabassova & San Isidro, 2020; Shraiber & Ovinova, 2017; Vitchenko, 2017).

CLIL pedagogy and methodology

This theme encompasses studies exploring the methodological and pedagogical implications of CLIL in practice. The reviewed studies delved into various aspects, including teachers' instructional practices in CLIL, the implementation of CLIL methodology in secondary schools, the effectiveness of CLIL approaches in higher education, the educational effects of CLIL in Master's programs, and the methodological impact of CLIL on pre-service teachers. Moreover, with a particular emphasis on the role of pedagogical approaches and digital tools, some of these articles shed light on how CLIL enhances university students' professional activities and language learning. This theme emphasizes the importance of adequate training and the development of effective assessment mechanisms aligned with educational standards and learning objectives, as well as how successful implementation of CLIL relies heavily on the practices and experiences of teachers. By focusing on the pedagogical aspects of CLIL, this theme contributes to the broader understanding of effective instructional methods that optimize the benefits of CLIL for both students and educators.

CLIL teachers' practices in primary and secondary education
Several of the reviewed studies concerned the pedagogical practices of schoolteachers. Kakenov (2017) investigated the practices of social science teachers and identified a variety of teaching strategies employed in CLIL classrooms. These strategies included individualized instruction, peer assistance, and the utilization of the native language (Russian) to explain subject concepts. The study found that these teachers had received training through seminars and masterclasses, benefiting from the guidance of CLIL coordinators and experienced teachers. Furthermore, Kuzembayeva et al. (2022) investigated the practices of science teachers during the COVID-19 pandemic, revealing their focus on adapting and supplementing study materials to facilitate CLIL instruction. These teachers also recognized the importance of considering students' language proficiency levels and encouraged increased English usage during discussions and presentations.

Adding to the pedagogical decisions secondary education teachers make in CLIL, some of the reviewed studies addressed issues pertaining to the integration of content and language in CLIL lessons. Golovchun et al.'s (2017) study highlighted the integration aspect of CLIL, and its focus on acquiring knowledge and skills in the target language. Moreover, Konyssova et al. (2022) explored the practices of schoolteachers trained in integrating English language teaching in natural science subjects. Their study highlighted variations in the

application of CLIL among teachers, resulting in differing levels of success. The integration principle of CLIL might complicate student assessment. Zhetpisbayeva et al.'s (2018) study on the CLIL assessment practices of secondary education science teachers found that some teachers assessed language skills alongside subject content, while others solely evaluated subject-related performance. Their study also revealed a lack of methodological preparedness and familiarity with CLIL methodology among teachers, resulting in some denying the need to assess language skills altogether. Karabassova's (2022a) study in highly selective schools revealed that subject teachers prioritized content goals in CLIL, often overlooking the pedagogical intentions behind CLIL integration. Many teachers also had a limited understanding of the pedagogical intentions and ignored the key element of integration.

Implementing CLIL in tertiary education

Issues of pedagogy and methodology as such seem to be more researched in tertiary education. Smagulova et al. (2019) assessed the efficiency of the CLIL approach in teaching English to psychology students through a course using the 4Cs framework and with a focus on vocabulary and grammar. Arynova et al. (2020) assessed a university course in Chemistry incorporating the 4Cs framework. Both studies advocated for the potential of CLIL as an instructional approach in higher education, noting the need to optimize instructional materials.

Three of the studies on tertiary education argued for the importance of including CLIL principles in courses. Nariman et al. (2021) focused on the educational effects of implementing CLIL in Master's programs. The study described a pedagogical model for teaching with the CLIL methodology and the course "CLIL for IT teachers" developed based on this model. Nurdillayeva and Zhuman (2021) explored the methodological impact of CLIL on pre-service Chemistry teachers. Shraiber and Ovinova (2017) specifically focused on CLIL as an innovative method for teaching foreign languages. These studies shared a positive impact of CLIL on students' knowledge and language development. Their findings emphasize the importance of integrated approaches in higher education to foster intellectual flexibility, creative expression, and problem-solving skills.

Discussion

Acknowledging the European sociopolitical and cultural roots of CLIL, this review examines the impact that CLIL has had in a non-Western educational context characterized by trilingual language policies and different educational practices. The review is conducted at a point when CLIL is gaining momentum in Kazakhstan and, contrary to many European educational contexts, has an official place in school curricula. The review provides an overview of peer-reviewed CLIL studies conducted from primary to higher education in Kazakhstan, and suggests three main areas of CLIL research in the examined context.

An important focus shared by the reviewed studies was perceptions and beliefs about CLIL. The studies on students' positive perception of CLIL show variation in relation to age and L2 proficiency (Akbarov et al. 2018; Satayev, Barrios et al., 2022). Several studies demonstrate learners' favorable attitudes to CLIL (Hu et al., 2023), which might be connected to language learning motivation (Banegas, 2022). Moreover, several teachers perceived CLIL favorably (Dontsov & Burdina, 2018; Maximova, 2020; Vitchenko, 2017), a finding similar to Aburizaizah's (2013) study. However, students struggling with content comprehension due to low L1 and L2 skills also affected how teachers understood CLIL as a methodological tool in

their teaching, which might have been influenced by teachers' limited understanding of the bilingual and integrative possibilities in CLIL (e.g., Em, 2021; Karabassova, 2022a; Karabassova & San Isidro, 2020). This could be improved by clarity in CLIL goals and targeted teacher training (Aburizaizah, 2013; Kao, 2022). Moreover, some teachers emphasized vocabulary learning (Kakenov, 2017), while others emphasized content learning (Karabassova, 2022a). Such perceptions might be explained by teachers' restricted vocabulary repertoire (Metli & Akış, 2022), and a lack of standardized content testing (Dalton-Puffer, 2011).

Several of the reviewed studies shared a concern about the positive impact of CLIL and the challenges encountered in practice. On the one hand, the studies reported increased student interest towards both language and subject learning (see also Huertas Abril & Shashken, 2021; Nurdillayeva & Zhuman, 2021) and improved language skills (see also Banegas, 2022) as positive outcomes of CLIL implementation. This is hardly surprising since language-related skills have been a particular focus in the CLIL research agenda, often at the expense of pluriliteracies and content proficiency (Hu et al., 2023; Pérez-Cañado, 2023). On the other hand, the studies noted shared challenges across levels of education. These were students' L2 proficiency, and teachers' need for CLIL-appropriate materials, more time to prepare CLIL lessons, and additional resources and training. Similar challenges have been reported in other contexts where CLIL is popular (e.g., Milla & Martínez, 2023; Satayev, Balta et al., 2022). Like the teachers in Metli and Akış (2022) and Lo et al. (2018), the teachers in the reviewed studies rose to the challenge of CLIL and employed a variety of pedagogical strategies to respond to instructional difficulties. Teachers' pedagogical skills can be enhanced through CLIL-specific training, which can help align teachers' praxis with experts' suggestions (e.g., identifying problems in advance, using the L1, presenting content, and using authentic materials) (Milla & Martínez, 2023). At school level, collaboration between EFL and content teachers may be a powerful strategy towards developing a more complex teacher identity that embraces multilingualism in the classroom, and balances content and language instruction (Valdés-Sánchez & Espinet, 2020).

Some of the reviewed studies examined issues of CLIL pedagogy and methodology, but mainly focused on higher education. These studies evaluated the effectiveness of CLIL as an alternative methodological approach positively based on an observed increase in student motivation resulting from optimized instructional materials, CLIL principles, and an interactional learning environment. These studies add to the paucity of research in the examined context concerning how teachers implement CLIL in their class. However, further research needs to be done on CLIL pedagogy in its own right in primary and secondary education.

Considered in their entirety, the reviewed studies raise several practical implications that concern, but may not be limited to, the examined context. If administrators are to promote CLIL for students' better educational and employment prospects (see Vitchenko, 2017), students should be pedagogically supported in developing not only their L2 language proficiency but also their L1 literacy skills. However, regardless of whether the focus of a CLIL course lies more heavily on language or content, a balanced integration of content and language instruction is essential to successful CLIL implementation. For this to happen, Kazakhstan's ambitious national language-in-education policy needs to be translated into suitable, quality materials tailored to the methodological particularities of CLIL. Such materials should have cognitive, cultural, and communicative considerations, and provide teachers with instructional support and informed guidance (Cao, 2021). To further support the top-down CLIL policy in Kazakhstan, university-led initiatives are necessary for organized

and consistent teacher education in CLIL. This will equip teachers with a rounded understanding of CLIL principles, methodology, and practices. It will further help reduce teachers' anxiety, improve self-esteem, and foster intrinsic motivation concerning CLIL (see Dontsov & Burdina, 2018). Supporting the development of CLIL in its early stages of official implementation in state-funded schools necessitates a coordinated multisite effort that has yet to take shape.

Conclusions

CLIL typically involves the integration of a subject and a target language, with English being the most used target language in research and practice. By primarily emphasizing English, CLIL may inadvertently marginalize the development of language skills in Kazakh and Russian, which are both official languages in Kazakhstan. To address this issue, it is crucial to promote research and practice that explores CLIL approaches in various target languages, including Kazakh and Russian. This study not only adds to current CLIL literature with its focus on a linguistically and culturally diverse context, but also problematizes current practices for a more inclusive and comprehensive trilingual education system in Kazakhstan.

Even though CLIL was officially integrated into the Kazakhstan curriculum in 2008, the earliest related research appeared very late, in January 2017. Moreover, despite our inclusive criterion regarding type of publication, the criterion for peer-reviewed publications resulted in the final selection of 3 master's theses and 23 journal articles. This can be attributed to delayed adoption of current research practices by Kazakhstani researchers and the lasting negative effect that research methods from the Soviet Union continue to have on Kazakh researchers' publications in peer-reviewed journals. Most of the reviewed articles focused on students' improved English language skills along with attitudes, views, perceptions, anxiety, interests, motivation, satisfaction, opinions, preferences, challenges, practices, experiences, and concerns. None of the reviewed studies concerned cognitive thinking skills, critical thinking, learner autonomy, and creative thinking, which are part of the Asian CLIL research agenda, albeit less popular research areas (Hu et al., 2023). These can be exciting avenues for future research in Kazakhstan. Such research could, for example, involve investigating the impact of CLIL on higher-order thinking processes, problem-solving abilities, and analytical skills. It could further involve examining how CLIL pedagogy can foster learner autonomy, self-regulated learning, and independent thinking. Diversifying the line of CLIL research may provide valuable insights for policymakers, curriculum developers, and educators in optimizing the implementation of CLIL in the Kazakhstani trilingual education system. At the same time, it may help enrich Kazakhstani CLIL research and align it with research conducted within other CLIL contexts.

Funding

Competing interests
There are no relevant financial or non-financial competing interests to report.

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Appendix. The reviewed studies

Year	Authors	Type	Journal	Construct	Study Design	Duration	School Level	Participants
2017	Golovchun et al.	Article	Astra Salvensis	promotions of students' outcomes	Qualitative	NA	University	teachers
	Kakenov	Article	NUGSE Research in Education	experiences	Qualitative	NA	Middle school	5 teachers
	Vitchenko	Article	Electronic Journal of Foreign Language Teaching	beliefs and perceptions	Mixed	NA	University	15 teachers, 207 students
2018	Akbarov et al.	Article	Acta Didactica Napocensia	experiences, opinions, perceptions, attitudes, and preferences	Qualitative	NA	University	125 students
	Dontsov & Burdina	Article	The Language Learning Journal	students' anxiety, self-esteem and motivation	Quantitative	NA	University	59 students

Year	Author	Type	Source	Focus	Method	Duration	Level	Sample
	Zhetpisbayeva et al.	Article	Journal of Advanced Pharmacy Education and Research	issues of assessment	Qualitative	NA	Middle school	68 teachers
2019	Karabassova	Article	Revista Nebrija de Linguistica Aplicada a la Enseñanza de Lenguas	teachers' practices	Qualitative	one academic year	Middle school	5 teachers
	Smagulova et al.	Article	International Journal of Innovation, Creativity and Change	impact of 4Cs principles on students' language	Qualitative	one semester	University	students
2020	Arynova et al.	Article	Bulletin of the university of Karaganda-chemistry	motivation and satisfaction	Qualitative	NA	University	22 students
	Karabassova & San Isidro	Article	International Journal of Multilingualism	teachers' perceptions	Qualitative	2 years	Middle school	275 teachers
	Maximova	Master's thesis	NU Repository	perceptions and challenges	Qualitative	one academic year	Middle school	6 teachers
	Omarbekova	Article	NUGSE Research in Education	effectiveness	Qualitative	NA	University	69 students
2021	Huertas Abril & Shashken	Article	Revista Complutense de Educación	perceptions, concerns and uncertainties	Qualitative	one academic year	High school	6 teachers
	Em	Master's thesis	NU Repository	practices and experiences	Qualitative	NA	High school	10 teachers

	Author	Type	Source	Focus	Method	Duration	Level	Sample
	Kydyrbayeva et al.	Article	World Journal on Educational Technology: Current Issues	readiness of future teachers	Qualitative	one academic year	Middle school	160 teacher candidates
	Nariman et al.	Article	Interactive learning environments	experiences	Qualitative	one academic year	University	62 students
	Nurdillayeva & Zhuman	Article	Bulletin of the University of Karaganda-Chemistry	interest	Quantitative	NA	University	36 students
	Shabdenova	Master's thesis	NU Repository	breakthrough and challenges	Qualitative	one academic year	Middle school	8 teachers
	Smagulova & Rakhimbayeva	Article	Bilim All	practices and experiences	Quantitative	NA	University	NA
	Yesmuratova & Shayakhmetova	Article	SDU Bulletin: Pedagogy and Teaching methods	challenges and benefits	Qualitative	NA	Middle school	8 teachers
2022	Karabassova (a)	Article	International Journal of Bilingual Education and Bilingualism	teachers' perspectives	Quantitative	two years	Middle school	5 teachers
	Karabassova, (b)	Article	International Journal of Bilingual Education and Bilingualism	teachers' perceptions	Qualitative	NA	Middle school	21 teachers
	Konyssova et al.	Article	Cypriot Journal of Educational Sciences	attitudes and perceptions	Mixed	NA	High school	62 teachers
	Kuzembayeva et al.	Article	Contemporary educational technology	experiences and challenges	Qualitative	NA	High school	8 teachers

Mehisto et al.	Article	Language learning journal	effectiveness	Quantitative	NA	Middle school	74 participants
Satayev et al.	Article	EURASIA Journal of Mathematics, Science and Technology Education	views	Quantitative	one semester	University	105 students

Note. NA indicates missing or unidentifiable information.