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Methodological System for Using ICT In the Process of Integrated Learning in Kazakhstan

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Abstract
ICT aided integrated language teaching is a new pedagogical practice in Kazakhstan, introduced to teach trilingual education as well as special language and methodological retraining in a gradually developing multilingual society. This study addresses the problem of applying ICT in disciplinary content and integrated foreign language teaching. The aim of the study was to determine the content of the curriculum and the current state of ICT use in integrated foreign language teaching in Kazakhstan. A survey-based qualitative research methodology guided this study, with a sample comprising 30 teachers and 84 students, both male and female, from secondary general education schools in Zhambyl and Taraz regions. The results highlight the importance of ICT and digitalization in teaching and learning, as it equips school administration, teachers and students to face the challenges of integrated learning. Teachers admitted that ICT enriched their teaching and improved their professional skills. The findings also reveal that ICT contributed in both subject content teaching and language acquisition. This study recommends the correct and appropriate use of ICT in teaching subject majors and a foreign language with the integrated approach. It is hoped that this study would pave the way to develop new programs of integrated learning process and manufacturing of textbooks on the subject, aiming at the formation of communicative competence.

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Keywords: Content and Language Integrated Learning, information and communication technologies, communicative competence, information competence.

Introduction

Internet is evolving at a fast pace today. Already, 35 billion devices are connected to the Internet and sharing data, a figure five times the total number of people in the world. The digital revolution is affecting all countries, which are implementing national digitalization programmes (Golwala, 2024). China has traditionally integrated the digital industry in its Internet Plus programme, Canada has established an ICT hub in Toronto, Singapore is building a smart economy driven by ICT, South Korea is focusing on human capital development, entrepreneurship and the diffusion of ICT advances in its Creative Economy programme, and Denmark is focusing on digitalization of the public sector (Rasul, 2024; Schwab, 2024). These developments have led to many new technological innovations used in education in recent years. Digital literacy is thus a catalyst for development as it promotes self-education and other vital skills. Teachers often find digital technologies suitable for use in their lessons and figure out for themselves when and where to integrate them with the teaching material (Chan, 2024).

The educational system of Kazakhstan is facing a great challenge to bring up competitive young people speak three languages - Kazakh as the State language, Russian as the language of international communication and English as the language of harmonious integration with the world economy. Multilingual education has widespread globally, as witnessed in the establishment of scientific and methodological centers to facilitate multilingualism through bilingual education models and technologies at various stages of education (Duman, 2024; Seitova, 2024). One of these modern methods is integrated learning. Globalization, economic growth, and population migration have further made it compulsory to apply integrated learning in higher education (Sultani & Usmonjon, 2024). By integrated learning, it means formation of communicative competence of students in a multicultural and multilingual space, capable of speaking one or more foreign languages along with their native language (Dalton-Puffer, 2011; Nevid & Gordon, 2018). Multilingual education is also strategically important as it is a prerequisite to integrate with the social order of a multinational society.

Integrated teaching is a new pedagogical practice in Kazakhstan; when analyzing foreign experience (Satayev et al., 2024). It should be noted that a large and comprehensive work had already been carried out in the Republic of Kazakhstan to introduce trilingual education, much before the need of integrated teaching was felt. The teachers of natural sciences, for example, had undergone special language and methodological retraining. However, it was not sufficient since the textbooks of natural sciences were not suitable for integrated teaching. Though a few textbooks had foreign editions, and they were compiled with the simultaneous use of two languages including the native language; but these foreign textbooks published in monolingual and foreign (native) editions and compiled for native speakers, did not always correspond to the language level of students in Kazakhstan. The reason was that these foreign textbooks did not take into account the domestic, i.e. Kazakh phenomenon (Dana et al., 2025). Moreover, when integrated teaching was introduced in Kazakhstan in line with the discipline and the experience of European countries, the Kazakh teachers were not provided comprehensive training and additional support to acclimatize with the integrated foreign language teaching. Hence, there were several anomalies with regard to language learning and subject matter or curriculum (Asan & Kunanbaeva, 2023).

Extensive research work so far has been carried out in ICT aided integrated language teaching in Kazakhstan. Teachers have begun to feel the need to critically sift through different forms of ICT, to use them for learning purposes and develop creativity to unlock students' abilities. In addition, comprehensive and large-scale research on the conceptual foundations of polylingualism formation in the process of integrated teaching of language and subject matter has also just begun in Kazakhstan. However, additional research is still needed to understand the didactics and methodological system for using ICT in the process of integrated learning. There is a dire necessity to build a methodological system of forming communicative competence with the help of ICT in the process of integrated learning, which would include every aspect like definition of principles, organizational and pedagogical conditions of integrated learning of second language teaching and subject using ICT, educational and methodological support (Howard & Major, 2004). Lastly, there exists insufficient theoretical and methodological and technological validity of the integrated learning process. A gap is felt to introduce a purposeful and systematic process aimed at the formation of communicative competence.

Hence, in order to bridge this research gap, this study aimed to address the problem of applying information and communication technologies in disciplinary content and integrated foreign language teaching and identify the types of ICT that exist today. The aim of the study was to determine the content of

the subject matter in schools and the current state of ICT use in integrated foreign language teaching. The rationale behind this study is that school teachers are capable of directly implementing integration of teaching of subject content and foreign language, and have the potential to prepare for this new step in educational direction. The scientific-theoretical significance of the research is conditioned by the necessity of compiling a methodological substantiation of the formation of a polylingual personality through the implementation of the content and technology of integrated teaching of the subject and language using information and communication technologies.

Literature Review

Integrated learning is recognized as an integrated approach aimed at teaching content in another language, a new pedagogical approach based on parallel mastery of language and content (Coyle et al., 2010). It is a pedagogical paradigm which along with the content of a subject (e.g. chemistry) facilitates learning a language equally and can promote knowledge and skills in a non-linguistic domain with a second language, i.e. in a non-linguistic subject, creating natural conditions for students to develop the knowledge of a language (K et al., 2025; Marsh et al., 2012; Richards & Burns, 2012; Tuimebayev, 2024). Zaripova (2015) recommends integrated subject-linguistic approach as the basis of subject teaching modelling using a foreign language at high school, and emphasized upon applying innovative technologies and integrated training. A more standardized viewpoint was narrated by Dalton-Puffer (2011) who recognized the need for content-and-language integrated learning (CLIL) to resolve both theoretical and practical problems by integrating teaching of subject matter and language. The CLIL, owing to its content-based instruction and immersion education, exerts a dual focus on pedagogies of different subjects like learning a foreign language or mastering a complex subject like mathematic. Salehova and Danilov (2015) have examined the CLIL both conceptually and pragmatically, in the context of Kazan educational system and recommend an integrated didactic model of bilingual teaching in higher education institutions.

In recent times, one can observe the growth of research in the field of information and communication technologies in the educational process at all stages of pedagogy. There is no dearth of research studies on the role and contributions of Information and Communication Technologies (ICT) in education system (Akhmetova et al., 2025; Asan & Kunanbaeva, 2023; Davranova Gulbahor, 2022; Nikolaenko, 2024; Oshanova & Sarbassova, 2020; Rakhinsky et al., 2021; Turganbaeva & Kanatbekova, 2023; Zhakupov et al., 2023). All these studies have identified main directions for ICT use in education; didactic and technological approaches to the formation and functioning of distance learning and e-learning systems and reviewed the problems and offered solutions in creating virtual educational environment. These studies have also discussed the problem of implementing the CLIL policy in the context of lifelong education in Kazakhstan in order to utilize ICT skills to ensure multilingual competence.

Digital learning technologies are known to play an important role in the lives of children and young people. In 2022 in Germany, a study was conducted (Schmuck et al., 2022) to determine the overall use of social media and assess political cynicism among German youth. The study also aimed at examining the role of information-orientation, exposure to extremist content, and online media literacy. This was an era when almost all learners have a smartphone and use the internet daily. In terms of digital use in schools, according to this study, an interactive whiteboard (31%) and a computer (22%) were found to be used at least once a week. The proportion of smartphone, laptop or tablet is negligible since this study was conducted during the pandemic, and the only technology available to students in integrated subject and language learning, was mobile phones (100%). This is probably due to the multifunctionality of the mobile phone, and its easy accessibility, easy to use, anywhere and without being tied to one place, and being able to download various web applications conveniently.

In the context of Kazakhstan, digitalization in education was boosted by the state hosted programme "Digital Kazakhstan", which not only initiated the process of "human capital development" but also created a qualitative human resource capacity. Studies have believed that ICT should become an integral and compulsory part of content-and-language integrated learning (CLIL), (Moore & Lorenzo, 2007). In the context, of Kazakhstan, however, a methodological system is needed. The application of ICT in the process of integrated learning also necessitates teacher training and professional development. The State Programme of Education and Science Development of the Republic of Kazakhstan for 2020-2025, therefore, publicized its agenda for sustainable development of technology in the educational domain, for which trends rapidly evolved. The agenda also included integrating educational and pedagogical goals with the professional development of teachers. Such an integrated approach required an optimal integration of subject matter (curriculum), psychological, pedagogical, social and other competencies necessary for a teacher to implement all kinds of pedagogical activities (A et al., 2025). Having adopted such integrated approach, teachers at all levels can improve pedagogical skills.

The Digital Kazakhstan programme of the Ministry of Education and Science of the Republic of Kazakhstan undertook a number of initiatives, including the effective use of information technologies in

everyday life; establishment of Robotics clubs that taught the general basics of programming; inclusion of information and communication technologies as a discipline and a pedagogical major. These initiatives were taken to ensure making ICT competencies as prerequisites for pedagogical specialists. Additionally, special attention was given to train personnel who were in demand due to the operational linkage between the labour market and the education system, i.e. specialists with digital skills and teachers who had acquired pedagogical and ICT competencies (Tastanbekova, 2018).

Methodology

Research Design

This survey-based study utilized a qualitative research design to assess the state of implementation of integrated teaching of subject content and foreign language in the Kazakh education system. The study recorded opinions and perception of respondents who comprised heads of provincial education departments, teachers and students. This study aimed at finding what subjects should be integrated in which schools and what direct support should be provided to teachers of integrated teaching.

Sampling

The sample of the study comprised 30 teachers and 84 students, both male and female from secondary general education schools in Zhambyl and Taraz regions. They were identified through convenience sampling techniques. All teachers had at least five years of work experience with advanced training in integrated teaching and foreign language. The group comprised both subject and foreign language teachers using subject content and integrated foreign language teaching. The student group comprised participants aged 14 years to 18 years. These students belonged to those classes where integrated teaching of subject content and foreign language was being implemented, and each student had at least one lesson with integrated teaching.

Research Instrument and Data Collection

The questionnaire comprised two sections carrying 16 closed-ended questions: (10) for teachers and (06) for students. The closed-ended questions were chosen because it was easy to compare responses which required respondents to make comparisons or generalization about the implementation of ICT in different aspects. Response options thus required the respondents to make choices between positive and negative aspects of ICT use and the teachers' readiness and capacity to use it. Each respondent was asked to choose several options from the ones offered, including the possibility of self-expression. There were questions like "What information technology is used in the lesson?", "What does the use of technology in an integrated lesson achieve?" with several multiple options to choose from, aiming to identify both positive and negative aspects.

The survey was administered in the online format through WhatsApp, Facebook Messenger, E-mail, Google Docs and Google Forms. Each respondent chose a convenient and accessible tool in order to reach more and more categories of respondents in the process (e.g., teachers of different ages, different subjects, teachers from schools located in rural areas). The questionnaire was distributed based on the subject taught by teachers, after approval from the provincial education department. The survey was conducted for a period of 3 weeks in December 2024.

Data Analysis

Once the survey was completed, all responses were collated and analyzed using a content analysis and comparative approach. The effectiveness of the use of ICT was assessed by teachers and students. There were also questions to determine which participants' information competences and ICT use could improve their skills. In addition, there were questions about whether online learning was necessary and about its effectiveness and impact.

Results

The methodology of this study relied mainly on two sections in the survey conducted in an online format, which involved collecting information on the benefits, requirements and challenges of using ICT in integrated teaching of science and foreign language subjects. One section of the survey covered students involved in integrated learning at school and the other aimed at teachers who delivered integrated learning. It was obvious that successful/unsuccessful moments of ICT use in an integrated lesson on subject content and foreign language can be identified only with the help of teachers and students practicing technology in teaching and learning. Hence, the aim of the survey was to identify ICT in integrated language teaching, its role in the formation of a multilingual personality for teachers and especially for students. The surveys focused on questions like "How often does the teacher use ICT in the classroom?" and "How often do students use computer or Internet in preparation for the lesson?"

The study was based on the premise that the ICT can create a virtual space for learning and teaching.

The ICT cannot be used in the same way as mainstream technology. For example, it is important to take some precautions while handling ICT tools (e.g. headset, headset and backset). Table 1 lists a few criteria in the form of suggestions to use them.

Table 1: *Criterion for the use of ICT and their description*

Criterion for the use of ICTs	Description of the act
Nature of education	All tools used in training must be designed for learning. It is very unacceptable to use computer applications, the purpose of which is not clear.
Collaboration/interaction orientation	The different ways of interacting with technology should be collaborative: sharing responsibilities in group work, the result of shared work
Integration with other learning activities	Try as much as possible to integrate ICT tools with other traditional practices (e.g. learning games, project work, and drawing) which provide meaningful learning experiences for students. ICT resources and software should be integrated as a creative tool for achieving a specific goal and creative result.
Learner-centered management of ICT tools	The students, if possible, should preferably administer the tools. The tools should not control the student's activities.
Visibility and ease of use	It is desirable to choose ICT tools, which are as clear and comprehensible as possible. Their functions should be clear and visible.
Should be non-violent and non-stereotypical	If an application does not meet this criterion, its use in a learning context is unacceptable.
Health and safety issues	The time a student spends in front of a computer should not be long.

The survey included a question: "With what frequency are ICT technologies used?" The teachers responded a computer most frequently used ICT tool (71.4%), followed by mobile phone (64.2%), and interactive whiteboard (34.2%) in third place. While the computer was used more frequently because teachers need different to collect and store learning materials from different resources. The use of mobile indicated convenience and the interactive whiteboard was an easy alternative to traditional learning process. However, poor equipment and infrastructure as well as insufficient internet connection were cited as reasons for the infrequent use of digital technologies.

Nevertheless, a majority of teachers (65%) agreed that digital technologies enriched their teaching. They agreed that learning took place best by interacting with children's experiences, thinking and activities. Therefore, every third teacher confessed that in the future he/she would like to learn how to use computers and new technologies. When asked whether it was necessary to be well informed about information technologies in order to improve professional qualification in the future, (70%) of school administration representatives and (55%) teachers admitted their need. The share of teachers who plan, organize and actually strategically implement professional development on their own was too small (only 16%), which they attributed mainly due to employment conditions and work environment.

These results highlight the importance of digitalization in teaching and learning. Teaching and learning through digital media though pose great challenges for school administration, teachers and students, but such risks need to be taken for them to be media competent and self-reliant in ICT technologies. Moreover, the use of digital learning technologies does not mean improved learning, but it does recognize an identity between context, purpose, learning and learning activities, learning content, social forms and the offer of digital media. If this identity is present, favorable conditions are created to improve students' cognitive abilities, as well as collaborative and autonomous learning. It helps develop the school's own digital concept, which should include the co-ordination of digital technology, infrastructure planning and upgrading teachers' information and communication skills.

In order to implement digital learning and teaching, as well as special activities in the school, it is also necessary to coordinate all related activities and integrate them into the daily routine of the school. A framework plan needs to be developed focusing on media education. This framework must include the scope of activities, taking into account the characteristics of the students at each level. It is clear that this planning should be done in consultation with the Computer Science Association. Table 2 presents a thematic plan for this framework.

Table 2: *Tasks to develop a digitalization framework*

Tasks aimed at applying digitalization		
Using media guidelines for information and reading	Information	Learning
Communicating and collaborating digitally	Information	Applying
Content-oriented tasks		
Understanding and evaluating the media landscape and its digital infrastructure	Types of Media	Information, operating principle and algorithm
Evaluating information, digital content	Types of information	Information analysis and definition of hell
Programming / coding	Working with digital content	Algorithm of digital content creation

In the answer to the question which types of technology are available to teachers and students in integrated subject and language teaching, and with what frequency these technologies are used, the percentage of each ICT tool and frequency was calculated and tabulated as shown in Figure 1.

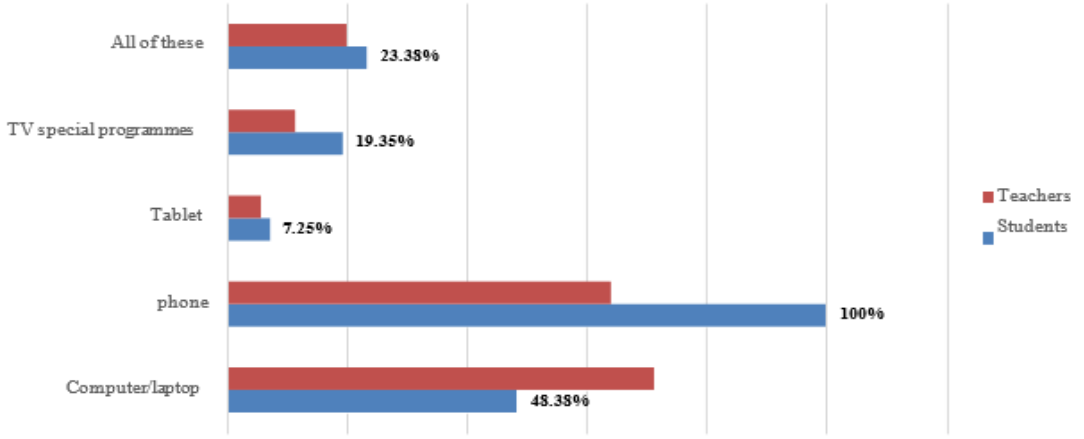

Figure 1: *Use of technological tools*

It is clear that technological devices are available to all subject teachers, whether at school or at home. The data reveals that all students (100%) use mobile phones; while compared to students, it is clear that teachers use more computers/laptops. This is much more suitable than a mobile phone for conducting a lesson using video conferencing, or various web applications, showing presentations or other online links. In addition, teachers of obviously find it much more convenient to work with online applications on a computer. Teachers also mentioned about the use of interactive whiteboard (34.2%) and projectors (22.85%).

In the next question students were asked why they used ICT. Table 3 presents a few reasons expressed by students.

Table 3: *Reasons to use ICT by students*

Reason for using ICT	Total number of participants (84)	Percentage %
The lesson will be fun and engaging	44	32.25%
Saves time and energy	42	33.87%
Feels independent and free	51	41.12%
Facilitates comprehension of the lesson	37	29.83%
Improves learning skills and pronunciation	40	32.25%
Improves my speech	39	31.45%
Improves efficiency	29	23.38%
Reason for using ICT	43	34.67%
The lesson will be fun and engaging	20	16.1%
Saves time and energy	27	21.77%
Feels independent and free	18	14.51%
Facilitates comprehension of the lesson	44	35.48%
Improves learning skills and pronunciation	13	10.48%
Improves my speech	70	56.45%
Improves efficiency	31	25%

The students were asked whether they liked the use of ICT to integrate the teaching of language and content by the teacher in the classroom, most students answered in affirmative. Figure 2 illustrates this perception about the question.

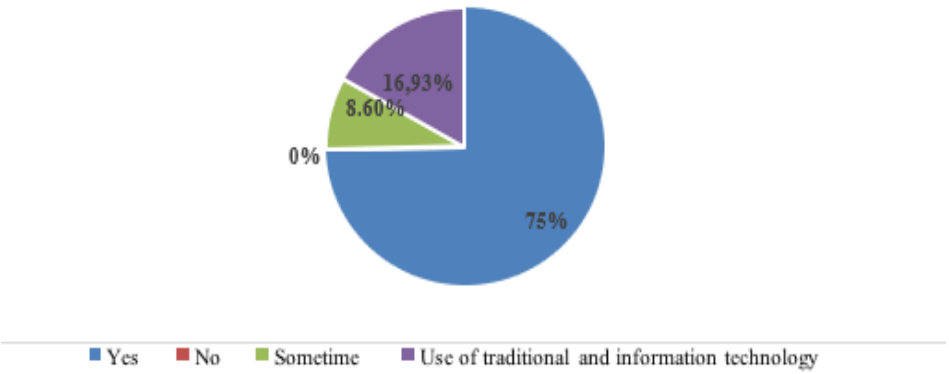

Figure 2: *Do students want teachers to use ICT?*

Next, the students were asked whether or not to use additional technology in the subject textbook in the classroom. The responses to this question are shown in Figure 3.

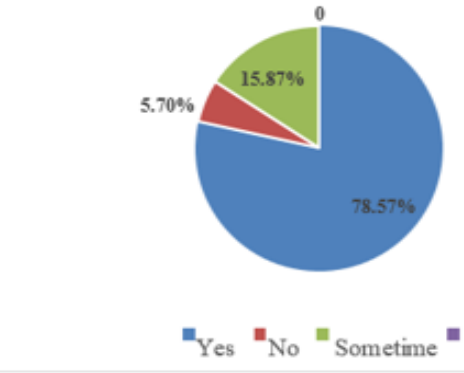

Figure 3: *Is it necessary to apply additional technologies to the subject textbook?*

The next important question to teachers was "How do you rate your technological competence in using ICT?" (Are you confident in your technological competence in using ICT?). This question aimed at determining how confident teachers feel about using ICT in front of students in the classroom (See Table 4).

Table 4: *Are you confident in your technological competence in using ICT?*

Feel confident	**N=30**	**Percentage**
Yes	16	72.85%
No	-	
I cannot use the ACT by myself. I need help.	3	4.2%
I am sometimes afraid to use the ICT.	3	4.2%
I need professional development in the use of ICT in teaching.	8	25.7%
I do not like to use ICT in the classroom.	-	

The next question was again from the teacher's perspective: "How do new technologies help teachers in subject content and integrated language teaching or what are the effective ways of using ICT? The responses are summarized in Figure 4.

Figure 4: *Scope of ICT help in teaching and learning*

Another question was to find out teachers' attitudes towards using ICT in the classroom: "Does the use of ICT facilitate parallel learning of subject matter and language by students?" Table 5 presents the findings of teachers' attitudes towards using ICT in the classroom

Table 5: *Teachers' attitudes towards using ICT in the classroom*

ICT helps to master the content of the discipline and the foreign language in parallel	**N=30**	**Percentage**
Yes	25	92.85%
No	-	-
Don't know	5	7.15%

The next question was related to skills and competencies as well: "Which skills do teachers think are

improved by using ICT in integrated teaching of language and subject matter content? The respondents listed several skills which are summarized in Figure 5.

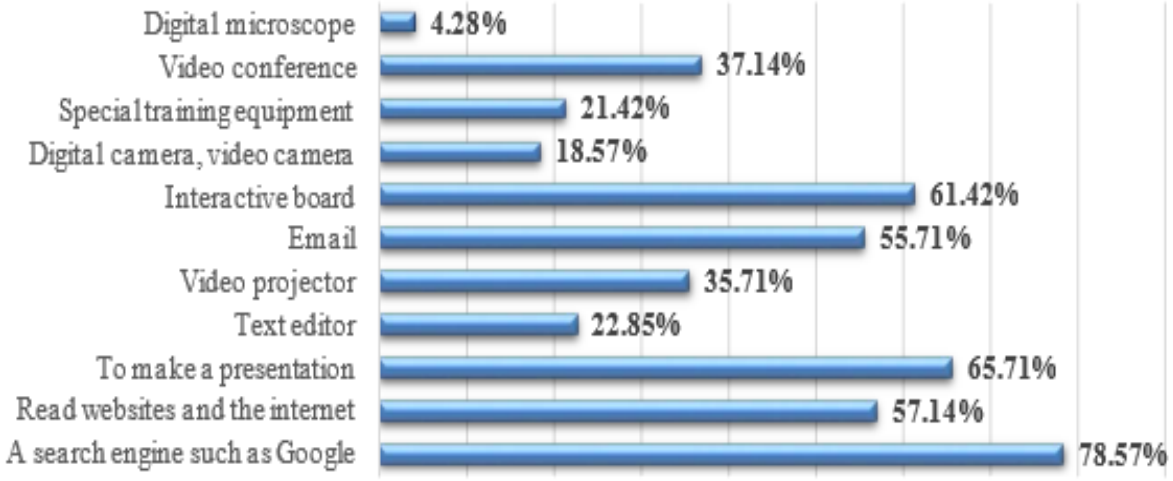

Figure 5: *Types of ICT used in classroom by teachers*

The next question explored teachers' views related to online learning, to which 32 respondents, i.e. 45.71% answered "Yes", 35 respondents (50%) objected, while 3 respondents (4.28%) answered "Don't know". Teachers were also asked to name negative aspects of ICT in use. Figure 6 illustrates a number of disadvantages of the use of ICT from the teacher's point of view.

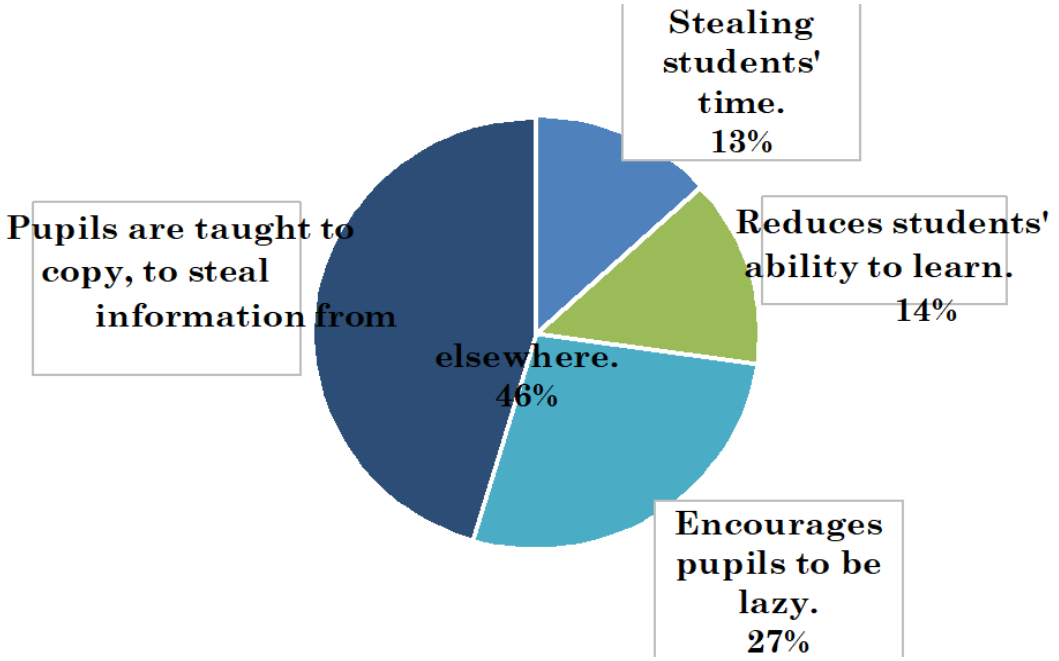

Figure 6: *Negative aspects of the ICT use*

All these findings indicate that the use of ICT for teaching in the digital age is a complex process which requires teachers to: (1) understand the meaning of computer and Internet for society and culture; (2) understand the meaning of computer and Internet for both learning and teaching. Often, it is much easier for learners to apply digital technologies in learning than for teachers to use in their teaching, because students' understanding and experience of learning is closely linked to media technologies, and their experience of media society is also greater than that of the teachers'. That is, today's students have gone through a socialization process through "new technologies" and live in a "digital world" and have already mastered its application.

Based on these findings, the study proposes a learning model to use the ICT, wherein each level of is required and used to implement knowledge or learning through steps like assimilation, understanding, communication, and collaboration. Figure 7 presents graphically this model.

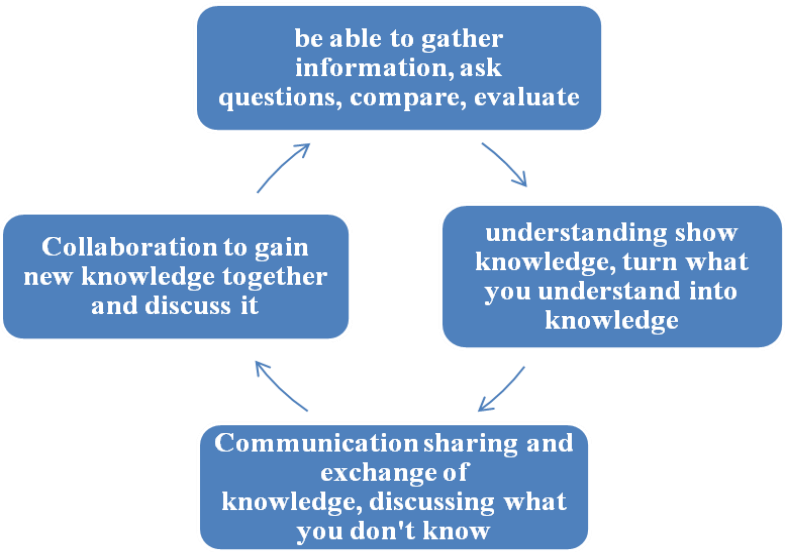

Figure 7: *Model of ICT*

The first stage of assimilation takes place when a student gathers information, asks questions, compares and evaluates the learning material when presented and reflects on it. The student accumulates information on the network of his or her choice, filters it and processes it in different ways. In the second stage, the student understands the information and transforms it into knowledge and stores it in blogs, wikis, PowerPoint, Prezi, YouTube, Scribd, Flickr, Padlet in the form of text, images, graphics, maps, and videos. In the third stage, the student shares his newly acquired knowledge with his peers and colleagues, republishes in all places where he had earlier stored this knowledge. Thus, he makes adjustments or adds new arguments and perspectives to his knowledge as a result of sharing and exchanging. In the final stage, the product created by exchange of views emerges in the form of collaborative work. In this stage, a group collaborates and develop thoughts, discusses and updates the content offered. These stages allow education to continue uninterrupted and facilitate students to get enriched with new knowledge.

The use of ICT is greatly seen in this model, as education becomes a social process. The ICT accelerates the learning process when the student is able to share his thoughts or participate in discussions with others, by using the ICT tools and techniques. The use of ICT not only accelerates this process, but also makes it comprehensive. The student makes the use of different types of digital interactive media and enhances his competence. This can also be referred to as the learner's individual learning pathway (ILP). The student gains mastery through ICT tools like search services, blogs, wikis, twitter, YouTube, Google+ and like and enhances his information database creating his own filter. For advanced information, the student can also use infographics, graphics software, Mindmeister, Dropbox, Pinterest, and Evernote.

The next question asked which learning activities the students liked/disliked in the integrated lesson involving a foreign language with learning a subject. This question aimed at identifying the scope of students' interest in learning second and third foreign language in CLIL technology, and to understand how ICT helps to shape the personality of a multilingual learner in the process of integrated learning. The responses reveal that several students showed an increased interest in learning a foreign language through the process of integration of language learning with learning a subject. A big majority (80%) of students positively evaluated the importance of ICT both for the subject and for learning a foreign language. However, the greatest difficulty faced by students was in oral responses (38%) and doing written assignments (41%). They enjoyed watching videos in a foreign language (70%), liked to participate in dissertations (41%), learn new words (35%) and read texts in a foreign language (38%). Nevertheless, 69% of the survey participants wanted to participate in multilingual education programmes and projects.

While integrated lessons helped to increase motivation to learn a foreign language, the following phenomena were also cited in their responses: interactive and game technology (33%), use of visual aids (25%), use of information and communication technology (40%), use of interesting didactic materials (20%), creative tasks (35%), teacher's interest in their subject (33%), teacher's rigor (35%), understanding of significance and necessity of learning a foreign language (18%), group work (10%). As far as difficulties in using a foreign language in an integrated lesson were concerned, students cited difficulty of using foreign language grammar (40%), speaking (38%), memorizing words (15%), pronouncing sounds (10%), listening and writing (20%). In addition, a quarter of students (25%) expressed no difficulties with regard to integrated subject and language learning. Last, but not the least, a majority (61%) found learning a foreign language not limited to the processing of learning material. They were also interested in authentic reading of texts with different content as well as watching videos in a foreign language, listening to news, taking part in discussions and writing comments.

These findings have determined the kind of language activities that makes it difficult for students to form a multilingual personality (e.g., writing, speech); it suggests which methods and technologies they like to use in class (e.g., video, ICT, interactive and game technology, group work) and which language learning activities they find difficult to cope make (e.g., vocabulary, phonetics, listening and writing). These phenomena are important for the formation of a multilingual personality, increasing students' motivation to learn two or more foreign languages, and applying effective foreign language teaching methods in multilingual education.

Discussion

It is known that ICT is widely used in education, but it was necessary to know how to combine these technologies through integrated learning and with what specific requirements of integrated learning. It was also necessary to identify measures to overcome the challenges of language barriers, ICT skills and content knowledge. Based on their knowledge and experience, respondents were asked: "what has been or will be the most challenging aspect in combining ICT and integrated learning for teachers?" Many answers revolved around appropriate materials for integrated learning sessions, which can be both digital and in terms of content and language, to match the content knowledge of learners, the learning materials should be interactive according to the language skills of learners, engaging, involving and involving learners in the learning process. In addition, a few students believed that materials should serve not only for student learning but also for assessment purposes. Respondents felt that learning material should be developed by professionals, taking into account the interdisciplinary nature of integrated learning, capable of combining quantitative and communicative competences of learners with complex forms of work.

When asked what might be the biggest challenge for students in integrated teaching and ICT integration, teachers argue whether they see any potential problems for students here, as they believe that students adapt easily to technology. Teachers placed more emphasis on students' language competence than on ICT skills and believed that students can benefit from integrated learning and ICT integration. The idea of integrated learning and ICT integration is very interesting, and we believe that this method of teaching would be very beneficial for students. ICT-integrated learning can be more effective than traditional methods because ICT can engage students in the learning process through integrated learning. Regarding integrated teaching and the training needed to use ICT, most subject teachers know where to find the necessary support in using ICT and integrated teaching, but it may be worth noting the lack of resources.

Thus, analyzing the results of the questionnaire, we can say that there is great interest in integrated learning from students and teachers, and many teachers appreciate the potential of this new method in teaching. Being a good teacher of integrated learning is very challenging, which means that you will have to invest a lot of time and effort to teach effectively using this method of learning, but given the great potential of integrated learning, the effort to achieve the best results can be a rewarding process. Integrated learning uses ICT in the classroom and benefits from this process in its learning effectiveness and the active participation of learners in the learning process. The use of ICT in the learning process in today's general education institutions is important for both teachers and students in learning subject content and integrated foreign language learning.

In conjunction with the implementation of the updated education curriculum in Kazakhstan, it was revealed that the Centre for Pedagogical Skills had launched professional development programmes for teachers of general education institutions. One of the seven modules of the programme focused on ICT. In addition, within the framework of the state trilingual education programme, subject teachers in science, along with special language level courses, had undergone professional development training in subject content and integrated foreign language teaching. In this context, as the study found, subject teachers still considered it necessary to upgrade their qualifications in the use of ICT in the integrated lesson. The study found that a majority of students and teachers were interested in online or e-learning. This determines the need to prepare sound resources for online learning as well as to familiarize teachers closely with online learning methodology. The open online learning courses of MOOCs, which are being massively implemented all over the world, should be made available to students in both their mother tongue and foreign language.

The study felt the need of teacher training and professional development of teachers in new digital learning technologies and new didactic- methodological teaching concepts. There are three stages of this kind of professional training and development. In the first stage, training in new digital learning technologies is provided by professionals. These technical service providers introduce new technological devices and appliances. Certified specialists provide technical support and specially trained multipliers in the individual subject areas and conduct explanatory work. Teaching and learning materials in the form of methodological guidelines are also provided to support the induction training. In stage 2, technical training is imparted to all teachers. Training seminars on Software and Hardware are conducted. All teachers in the school are trained to use new multimedia devices such as interactive whiteboard or Web 2.0 technology, cloud-based or networked measuring devices in their daily lessons. They are introduced to

the possibilities of preparing a lesson using technology and trying it out in practice. Depending on the device, guidance, webinars or guided practice sessions are offered to supplement the knowledge. The training seminars are often divided into level 0, comprising basic training courses for newly arrived teachers, and level 1,2 and 3 for advanced learners. Each level helped to recall the knowledge and give a new impetus to integrated learning.

In stage 3, didactic and methodological support is given to all learners, since the installation of new software and hardware, there is a need to provide special professional development training. All learners are divided into subgroups based on subject area and under the guidance of teachers who have experience and expertise in the profile of the course. In addition, depending on the type of software or hardware and the device, professors and experts from higher education institutions are invited to deliver training. Participants are required to develop small projects jointly or try out new pedagogical approaches. Here the technical possibilities are linked to the content of the curriculum and the objectives of the curriculum and specific support instructions related to the day-to-day activity are drawn up. Linking training seminars with practice increases the chances of easy integration of new media into lessons. The idea of exchanging experiences with other subject associations and colleagues from other schools through regular workshops and seminars is also recommended in this final stage.

Conclusion, Recommendations and Implications

In conclusion, this study has shown the importance, advantages and effectiveness of using ICT in integrated teaching of foreign language and subject content. We have considered that teachers and students use ICT not only in school but also outside school and that ICT develops different skills of students. Negative aspects of the use of ICT from the teacher's point of view have also been expressed. The purpose of this study was to show the importance of ICT use in subject content learning and integrated foreign language learning. Also, the benefits and effectiveness of ICT from the teacher's and student's point of view were examined and the negative aspects of its application were not neglected.

This study was a survey of subject teachers practicing integrated teaching in Zhambyl Province and Taraz City. The findings reveal that a large number of respondents confirmed the need of ICT in both subject content and language acquisition. Consequently, this study recommends the correct and appropriate use of ICT by students. it is important that there should be interest and motivation in the lessons. The students should be interested in using different sources of resources independently or together with their classmates for parallel learning of subject matter and foreign language content. In this study, both teachers and students report that the use of ICT improves language skills, such as reading, listening, writing, speaking, speed of speech, and the correct use of subject words. They praise the effectiveness of the use of ICT in the learning process.

It is hoped that this study would pave the way to develop new programs of integrated learning process and manufacturing of textbooks on the subject, aiming at the formation of communicative competence. Such a step would not only take into account the level of foreign language skills of students, but would also address lack of language and subject teaching materials. The ICT thus proves to be a boon for students of all age groups, levels and characteristics with regard to learning foreign language skills.

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