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José María Pino Suárez 400-2 esq a Lerdo de Tejada. Toluca, Estado de México. 7223893475
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TÍTULO: Sinergia de las tecnologías innovadoras con el Enfoque Integrado del Aprendizaje de Contenidos y Lenguaje en la Educación Terciaria.

AUTORES:

1. Ph.D. G. V. Glukhov.

2. Ph.D. L. V. Kapustina.

3. Ph.D. I. A. Martynova.

RESUMEN: El concepto de Aprendizaje Integrado de Contenido y Lenguaje (CLIL) ha atraído la atención de los expertos. Se argumenta que el enfoque CLIL ayuda a aumentar el conocimiento profesional basado. Al mismo tiempo, la educación en idiomas ha experimentado una implementación ubicua de las tecnologías modernas. Un experimento educativo reportado en este artículo fue provocado por esas tendencias. El experimento se realizó para evaluar el potencial de aprendizaje con el curso electrónico CLIL y estaba destinado a mejorar la calidad de la formación lingüística en el entorno educativo digital contemporáneo. El enfoque metodológico adoptado es una metodología mixta basada en experimentos pedagógicos, estadísticas matemáticas e instrumentos de evaluación. Los resultados confirman los beneficios de aplicar el enfoque CLIL a través de recursos digitales en la educación terciaria.

PALABRAS CLAVES: aprendizaje computacional, aprendizaje integrado de contenidos y lenguaje, educación digital, habilidades profesionales, destrezas meta académicas.

TITLE: Synergy of innovative technologies with the Content and Language Integrated Learning Approach in Tertiary Education.

AUTHORS:

1. Ph.D. G. V. Glukhov.

2. Ph.D. L. V. Kapustina.

3. Ph.D. I. A. Martynova.

ABSTRACT: The concept of Content and Language Integrated Learning (CLIL) has attracted the experts' attention. It is argued that CLIL approach assists in increasing professional knowledge-based. At the same time, language education has experienced ubiquitous implementation of modern technologies. An educational experiment reported in this paper was provoked by those trends. The experiment was conducted to test learning potential with CLIL e-course and was meant to improve the quality of language training in contemporary digital educational environment. The methodological approach taken in this study is a mixed methodology-based on pedagogical experiment, mathematical statistics and assessment instruments. The results confirm the benefits of applying CLIL approach through digital resources in tertiary education.

KEY WORDS: computer learning, content and language integrated learning, digital education, professional skills, meta academic skills.

INTRODUCTION.

The scope and importance of professional language learning in tertiary education have changed significantly. It is widely recognized that CLIL approach to language teaching together with the use

of e-learning technologies is able to promote the solution of different educational problems, which could not be solved with the help of traditional methods (Hurajová, 2013; Lasagabaster, 2011; Yang, 2016). 'Professional concern' is often mentioned among the factors that could provoke interest among young and future professionals towards language learning with CLIL e-courses. In Kargina the term 'professional concern' is defined as "an interest towards one's future profession and pursuit of obtaining knowledge on the subject through all possible channels" (Kargina, 2014). Such channels are widely represented by the means of digital education. It allows students and instructors to use various multimedia resources that could stimulate the interest towards the subject.

There is a barrier of metacognitive skills insufficiency that prevents young professionals from efficient subject and language acquisition. The conclusion of the aforementioned challenge seems straightforward. There is an urgent need to balance the equilibrium between the young professionals' weak background preparation and the demands of the growing economy. Good command of foreign language is currently a "must" to become a recognized expert within a certain professional community as it enables young professionals to cooperate and share their knowledge with other professionals at their field around the world.

To find a compromise and to respond to the demands of the labor market, which requires high mobility and employability of graduates, Russian universities tend to increase the number of subjects taught in English, which is generally a TL there. Universities implement courses integrating both content and language learning (CLIL) with a dual focus on developing learners' content knowledge via the instruction in the target language (TL) (Khalyapina, 2017). This integrated interdisciplinary approach between language and subject matter can create the synergy needed to prepare highly-qualified specialists in a particular field of knowledge.

Integrating CLIL approach with clearly guided technology integrated tasks, which can be performed ubiquitously, gives the students of iGeneration the opportunity to learn in a dynamic environment. Based on the findings from Bozdoğan (2013), Kovaleva (2016), Howard and Wan (2009), De Santo and De Meo (2016), we summarized the advantages of e-learning below.

Technology integrated tasks:

- Are flexible and interactive.
- Do not occupy the learners' attention all the time, but are able to be moved seamlessly and effortlessly between the learners' central and peripheral attention.
- Promote creativity and higher order thinking.
- Encourage students' inner motivation and responsibility for their academic success.
- Attract students´ attention.
- Facilitate the sharing of ideas, experiences and skills.
- Promote autonomous learning abilities.
- Integrate phases of guided autonomous learning with collaborative activities.
- Are assessed in electronic environment.

This led us to wonder to what degree the use of CLIL approach realized in the form of e-course may help to improve the efficiency of TL acquisition through learning students' subject matter. Thus, this paper gives an account of findings on efficiency measurements of e-learning mode of instruction and CLIL approach combined strategy in improving the students' TL skills acquisition.

DEVELOPMENT.

Combining CLIL approach with the benefits of e-learning, an e-course in Economy was created on the Moodle platform provided by Samara State University of Economics (SSEU). The methodological approach taken in this study is a mixed methodology based on pedagogical experiment, mathematical statistics, target situation analysis, needs analysis and assessment

instruments. Participants, who formed the cohort, belonged to the first year of World Economy baccalaureate program in Samara State University of Economics. The cohort consisted of 50 students each (N = 50).

The study uses design and measurements adapted from Korzh (2017), Nazarenko (2015) and the National Research of Secondary Education Quality (NRSEQ) (Federal Service of Monitoring in Education and Science, 2016). Based on this methodological framework, the results were analyzed and interpreted. The process of e-course formation was divided into 4 major stages.

Materials and Methods.

Firstly, there was a 'target situation analysis', i.e. analysis of the professional framework where TL would be applicable to solving professional tasks.

Secondly, 'present situation' was analyzed. That means that background knowledge of TL was diagnosed. The total number of World Economy students was tested according to Common European Framework of Reference for Languages (CEFR). The results of the test indicated that from the total number (N=70) of the first-year students 50 belonged to A1-A2 level. Interestingly, despite the fact that at the stage of needs analysis almost all participants of the focus group defined their level of proficiency in a TL as 'intermediate', the results of the diagnostic test showed that in reality the situation looks somewhat different.

Next, conditions for intervention were inspected. That was 'context analysis'. The experimental group was taught e-learning setting.

Finally, intervention effectiveness was evaluated. For that purpose, the group was assessed at the initial stage at the end of the experiment. Results of the assessments are reported in the next part of the paper.

Results.

At the first stage of the experiment, 70 students of SSEU were surveyed on the issue of the TL application in their professional setting. The results of the survey showed that 50 people (71.4%) would like to study part of the core subjects in a TL. Among them, 40 people (80%) defined their TL proficiency as "average" and 10 people (20%) as "slightly above average". At the same time, all respondents (100%) do not believe that they are sufficiently prepared for the perception and reproduction of professional information in a TL.

46 of the 50 (92%) respondents rated their interest in the opportunity to get an idea of how much knowledge they will need when studying specialized subjects in a TL at the highest score on a 5 - point scale, 4 people indicated their interest in 4 points.

The opportunity to study their major subject as well in a TL in the framework of digital learning seemed to all respondents highly attractive. 78% of respondents considered themselves ready for self-development, repetition and systematization of educational material. As a desired result of mastering the e-course, all respondents agreed with the options proposed in the questionnaire and indicated that the ability to read texts on the subject/ understand oral speech/ write an article or report/orally answer questions on the profile discipline will demonstrate the application of knowledge and skills in practice. Thus, the survey revealed the educational need that could be met by a CLIL e-course in the framework of digital education.

The diagnostic test consisted of two parts: oral and written. The written part was presented with a vocabulary and grammar test. The test was designed to determine the level of TL proficiency on the scale of the Council of Europe. According to the results of this test, it was found that the majority of students from the focus group demonstrated the level corresponding to the indicator A2, which implies basic skills. In the second part, the skills of oral speech were tested.

Two short texts were proposed for oral reading with comprehension. The first text was of a general nature and corresponded to the topics studied in the course of secondary compulsory education, the second text was subject-oriented. Based on the results of the analysis it was supposed to assess the overall level of knowledge of reading for comprehension skills and understand the impact of the professional orientation of the text on the quality of conscious reading aloud. The results of the comparative analysis of errors in reading the two texts are presented in Table 1.

Table 1. Reading for comprehension (compiled by the authors).

% of mistakes while reading	
General text	25,3%
Subject-oriented text	53%

Source: compiled by the authors.

The average score for the general text was 1.95 points, for the subject-oriented text 0.9 points respectively.

Students were also asked to perform an oral task on the description of graphic information. The importance of such skills formation and development is caused by the need for their application in professional activities, for example, professional conferences, business meetings, writing analytical reports and research articles, etc.

Speaking skills were assessed by asking students to describe the information presented graphically on the basis of the plan. They were expected to provide a coherent description of graphic information, consisting of 8-10 phrases, in which it was necessary to describe: what kind of graphic information is presented, what data is presented, what conclusions can be drawn. The average score for a speaking task based on visual information was 2.2 points (27.5% of the completed task).

results show that almost half of the students have not coped with the diagnostic work, which indicates the need to improve the efficiency of training at the University to enhance the competitiveness of future professionals in the global labor market, where they have to perceive and produce professional information in a TL.

The tasks of the e-course were developed taking into account the typical errors detected in the diagnostic test. The course includes both productive and receptive activities. Face-to-face training activities were delivered in a classroom combined with tasks implemented through Moodle, a Web 2.0 virtual learning environment providing students with interactive multimedia contents and communication tools fostering participation and collaboration.

For independent and autonomous training, technology integrated tasks with clear guidelines were offered. Those tasks can be performed ubiquitously, as using e-course is not constrained by "physical space and plans or timetables but is pervasive and occurs anywhere at any time" (Howard & Wan, 2009); thus, the students practiced using English actively and productively in class and were given chances to use English after class.

The combination of grammar exercises with conversational practice allowed students to use the time more effectively as they can speak a TL, while practicing a particular grammar pattern. The expansion of the vocabulary was obtained through the availability of information about unfamiliar words, frequent repetition of words in the subject-oriented texts and tasks aimed at the subject content of professional information. The Glossary tool in Moodle allowed instructors to develop an instrument for practicing a strong decoding skill. But the emphasis was put on tape-assisted and video captioned texts. Online voice recording tools were actively used to monitor students' performance. Peer assessment was also actively employed throughout the course.

At the final stage of the experiment, diagnostic work was carried out in order to assess the level of formation of skills needed. The results of the analysis of the same skills that were tested on the input diagnostic testing are presented in Table 2. These results can confirm or contradict the hypothesis of improving the effectiveness of training with the CLIL e-course application. Thus, the final diagnostic test was presented by the oral part, which includes tasks on reading and speaking (Table 2 and Figure 1).

Table 2. Final test results (compiled by the authors).

Task number	**Skills assessed**	**Average % of completion the task**
1	Comprehension reading of subject-oriented text	1.98
2	Speaking bases on visual information	6.3

Source: compiled by the authors.

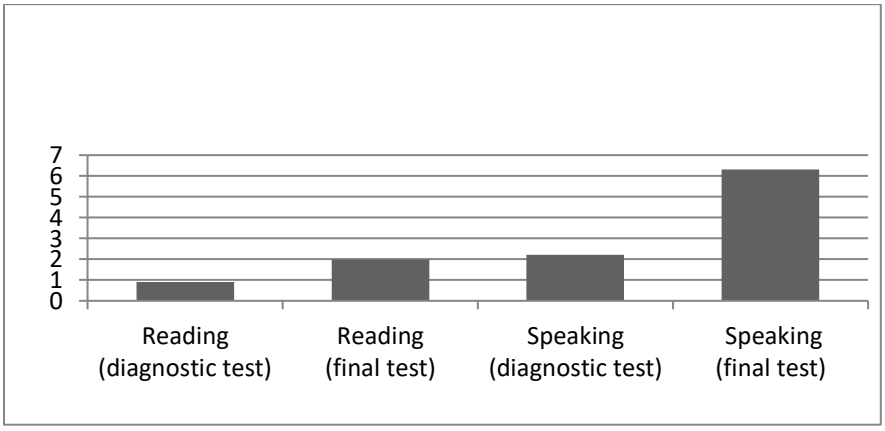

Figure 1. The comparative percentage of diagnostic and final tests results.
Source: compiled by the authors.

Results for comprehensive reading increased from 0.9 points to 1.98 points. The score for the speaking task based on visual information also increased significantly from an average of 2.2 points to 6.3 points. Overall the performance in tasks for oral speech skills is characterized by an increase of 55% and 65%, respectively, which indicates a sufficient level of efficiency of development of oral speech skills in students who have been trained with the CLIL e- course created on the basis of LMS Moodle.

Thus, the results of our research have confirmed the effectiveness of the approach suggested in this study and thereafter the hypothesis that was advanced is also confirmed.

Discussion.

This research examined the effects of CLIL e-course for tertiary students with poor speaking, decoding, oral reading fluency, comprehensive reading skills. The purpose of this experiment was to support students and equip them with the skills necessary for mastering CLIL course at the next stage of their university studies. Special set of activities was developed for the first-year students to become engaged in the learning process, to allow access to level-appropriate and interesting professional tasks, and to improve metacognitive and comprehension skills.

Overall, this study makes several contributions to the existing research regarding the most effective ways for improving TL proficiency. A particularly encouraging finding was that combination of e-learning resources with CLIL materials represents an approach with excellent prospects.

Based on the results of the pedagogical experiment the current study adds to the growing body of research that indicates the urgent need in finding balanced and effective methodological approach that could simultaneously equip students at the tertiary level with sufficient knowledge on the subject and language.

Regarding implications for practice, our study showed that metacognitive skills could be successfully developed through e-learning approach without demanding much classroom time and in relatively short period of course implementation. Moreover, this approach promotes autonomous learning abilities and encourages students' responsibility for their academic success.

CONCLUSIONS.

To conclude, the success of the intervention for students with low level of TL demonstrates the efficacy of CLIL approach through e-learning mode of instruction.

Participation in the course was beneficial for tertiary level students because they were provided with an adequate background for the perception of consecutive CLIL course through the access to level-appropriate professional materials and sufficient practice of TL. The activities were also important in terms of increasing students' metacognitive skills. In the process of testing the e- course, students received not only professional knowledge and the TL skills necessary to operate this knowledge, but also the opportunity to undergo new experience on the basis of intentional formation of creative and critical thinking.

Positive results provided by the experiment outcome encourage future experiences of applying innovative online learning resources as they demonstrate sufficient relevance. There is a need to continue this research involving larger number of participants. Future research also might examine the implementation of this intervention within the regular classroom program rather than in an experimental setting.

CLIL methodology implemented with various breakthrough technological advances could be perfectly integrated into the overall system of training future specialists who are ready to enter the labor market.

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DATA OF THE AUTHORS.

1. G. V. Glukhov. Samara State University of Economics, Professor, Russia.

2. L. V. Kapustina. Samara State University of Economics, Associate Professor, Russia. E-mail: lkap@inbox.ru

3. Ph.D. I. A. Martynova. Samara State University of Economics, Associate Professor, Russia. E-Mail: martynov1998@rambler.ru

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