2 Копотева Г.Л., Логвинова И.М. Проектируем урок, формирующий универсальные учебные действия. – Учитель, 2013 г. – 99 с.

3 Кульневич С.В., Лакоценина Т.Н. Совсем необычный урок: практическое пособие. – Ростов-на-Дону: издательство «Учитель», 2006. – 288 с.

4 Кудрявцев В.Т. Проблемное обучение: истоки, сущность, перспективы. – М.: «Знание», 1991 г. – 80 с.

5 Лернер И.Я. Проблемное обучение. — М.:«Знание», 1974.

6 Селевко Г. К. Современные образовательные технологии: Учеб, пособие – М.: Народное образование, 1998 г. – 256 с.

7 Мельникова Е.Л. Технология проблемного обучения. Школа 2100. Образовательная программа и пути ее реализации. М.: Баласс, 1999 г. – 60 с.

8 Актуальные вопросы формирования интереса в обучении / Под ред. Г.И. Щукиной. М.: Просвещение, 1984 г. – 176 с.

IRSTI 14.35

R. Nurzhan[1], M. Ashirimbetova [1]
[1]Suleyman Demirel University
Almaty, Kazakhstan

APPLICATION OF CLIL IN MATHEMATICS LESSONS FOR IMPROVING STUDENTS'MOTIVATION

Abstract. CLIL model has proved its effectiveness in teaching language and content. And also it plays one of the major roles in increasing students' motivation. The research into the benefits of teaching mathematics in English to Kazakh students refers to the following domains: the development of students' cognitive skills for both mathematics and English, the relationship of the two disciplines and its impact on learning and teaching. Thus, the current article dwells upon the procedure and the results of an experiment conducted with application of CLIL method for Mathematics lessons aimed at improving students' motivation.

Key words: CLIL application, mathematics, improving motivation.

***

Аңдатпа. Үштілді білім мәселесі күннен-күнге өзекті болып жатыр. Бұл мақалада оқушылардың мотивациясын арттыру бағытында математика сабағында «пән мен тілді кіріктіріп оқыту» моделін қолдана отырып, тәжірибелер нәтижелері мен рәсімдері қарастырылған. «Пән мен тілді кіріктіріп оқыту» моделі өзінің пәндік мазмұны және тіл үйрету

тиімділігін дәлелдеп келеді. Сонымен қатар, оқушылардың да мотивациясын көтеруде басты рөлдердің бірін орындайды. Қазақстан оқушыларына математика пәнін ағылшын тілінде оқытудың артықшылықтарын зерттегенде келесі мәселелер қарастырылды: оқушылардың математикадан да, ағылшын тілінен де танымдық машықтарынын дамуы, екі пәннің қатынасы және олардың оқуға мен оқытуға деген оң ықпалы.

Осылайша берілген мақаланың авторы оқушылардың мотивациясын жақсарту мақсатында математика сабағында «пән мен тілді кіріктіріп оқыту» моделін қолданып, тәжірибелердің нәтижелері мен рәсімдерін қарастырған.

Кілт сөздер: «Пән мен тілді кіріктіріп оқыту» моделін қолдану, математика сабағы, мотивацияны көтеру.

***

Аннотация. Проблема трехъязычного образования становится все более и более актуальной. В настоящей статье рассматривается процедура и результаты эксперимента, проведенного с применением модели предметно-языкового интегрированного образования (ПЯИО) на уроках математики, направленных на улучшение мотивации студентов. Модель ПЯИО доказала свою эффективность в обучении языку и предметному содержанию. Также модель выполняет одну из главных ролей в повышении мотивации студентов. Исследование преимуществ преподавания математики на английском языке для казахстанских студентов затрагивает следующие области: развитие познавательных навыков учащихся, как по математике, так и по английскому языку, отношениям двух дисциплин и их влиянию на обучение и преподавание.

Таким образом, автор данной статьи рассматривает процедуру и результаты эксперимента, проведенного с применением модели ПЯИО на уроках математики, направленных на улучшение мотивации учащихся.

Ключевые слова: применение модели ПЯИО, уроки математики, повышение мотивации.

«Success or lack of it plays a vital part in the motivational drive. Both complete failure andcomplete success may be de-motivating» [1]. Cognitive processes are influenced by emotions. Emotional reactions ofstudents are ambiguous and often difficult to understand. Negative emotions canlead to creating emotional defense mechanisms, e.g. avoidance or rejection ofinvolvement in certain classroom activities, they can lower the students' ability tosolveproblems, etc. «The teacher's task is to enable the students develop their individually differentprocess of knowledge building and meaning construction as well as positiveattitudes» [2]. What is it that makes a person want to learn or teach mathematics in Englishand not in Kazakh ? The socio-educational model of learning [3] incorporates the students' cultural beliefs,

their attitudes towards the learningsituation, their integrativeness and their motivation. Hejný [4] holds thatmotivation is the first step of all cognitive mechanisms.If we perceive a goal and if the goal is sufficiently attractive, we will bestrongly motivated to do whatever is necessary to reach that goal. Thus students wishing to learn mathematics in English will probably be extrinsically motivated, i.e. more concerned with factors lying outside the classroom as they will have longterm goals. Such students are easier to teach. Their motivation is rather of the instrumental than the integrative type. Later on, however, the variables influencing their motivation «will also include the nature and perceived purpose of the task, the actions of the teacher and the nature of the teacher – learner relationship» [5]. Students' learning priorities are interesting classes and teachers who showthem their success. Students' willingness to engage in an activity simply because itis fun, exciting, informative, relevant and new is described as intrinsic motivation.

Method of investigation

It is obviousthat we as teachers were more interested in practical implications of attitudes and motivation for learning/teaching than in external reasons for study. Therefore the data gained by a variety of means have been processed with the aim to advice new teachers wishing to get involved in the experimental programmes, how to increase the students' intrinsic motivation. we used the following methodology: The lessons were observed and videorecorded for further analysis. Questionnaires dealing with Kazakh students´ attitudesbecame the primary source of data. We worked with three target groups of students aged 14-15 coming fromsecondary school classes. There were 67 studentsaltogether. The choice of age was deliberate as it is commonly accepted that attitudes and motivation vary with regard to age. The questionnaires were administered in three 8th grades of the High school of advanced study of English in Atyrau where mathematics as well as all other subjects are taught in Kazakh.English is taught as a foreign language.This part of research was carried out in the school year 2016-2017. After some hesitation, we decided not to use the Attitude/Motivation TestBattery, as it was invented for the purposes of language learningonly. Instead, we createdpre and post questionnaires. The questionnaire was made in Kazakh. Pre questionnaireconsisted of two parts:

Part 1 consisted of two Yes/No questions. Its aim was to specify the students' attitudes to mathematics/English in general.

Part 2 dealt with students' attitudes towards mathematics and English linked together in one lesson/course. The first question involved a categorical response. The second question was related to the preceding one and it was open-ended.

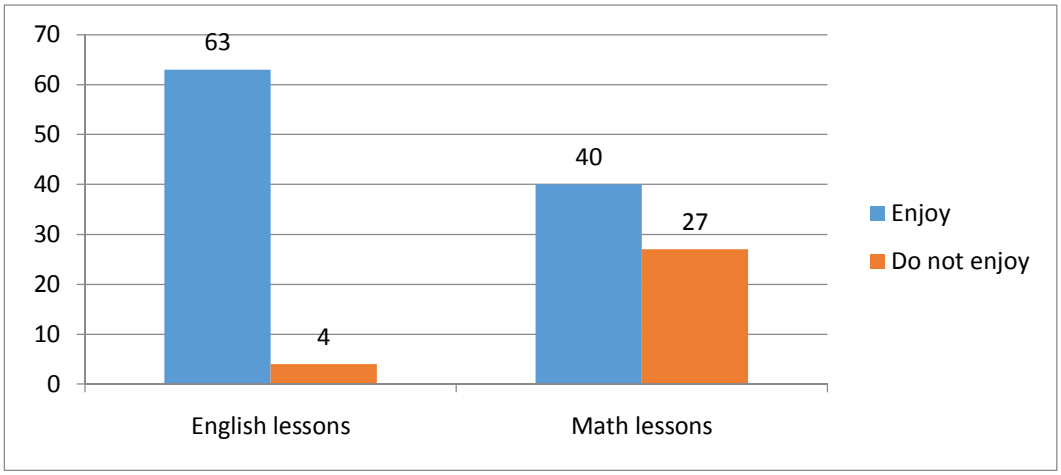


Fig.1. The students' attitudes to English/Math lessons.

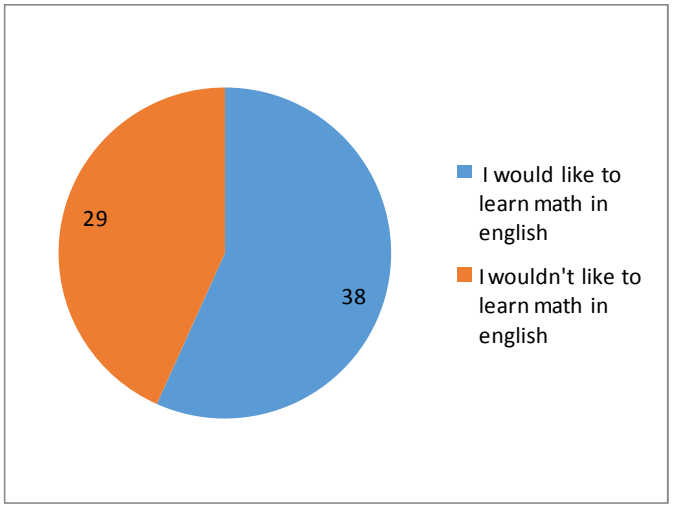


Fig.2. The students' attitudes towards to learn Math in English language.

In the second part of pre-questionnaire the students were asked if they enjoyed learning Math in English and what (if any) benefits and disadvantages learning Math in English had. The answers are presented in the following chart.

Table 5

Summary of second question of Part 2.

Question No.	Benefits and advantages	Number of respondents
2	We will learn the language fluently	20

	Increase the interest to Math	13
	We would use the English language in practice	11
	The motivation will be increased	7
	The lessons would be interesting	7
	We would understand the Math better	5
	It has a lot of benefits	4
	Enrich the vocabulary	3
	Necessary for our future	2
	Disadvantages	Number of respondents
	It will be difficult to understand the Math	25
	Students may not understand some topics because of the not knowing English language well	9

It was surprising that teenagers when given freedom to express their feelings, were able to give such clear and versatile set of benefits as shown in Table 5. To sum up, the sample nominated all the benefits stated in our hypothesis. The answers covered a wide range of possible methodological reasons for the inclusion of teaching mathematics in English in the school curricula.As an additional illustration, let us quote the answers of several respondents: «Having lessons in English will help us to make better speeches, will get used to speaking English. They will be very useful for our future."
"It would be good to have Math in English. Because, educated offspring is needed for our country. We will absorb the English language well. Also the interest to Math lesson will get more increased». «Math should be taught in English. Because, I will have used English language in practice. Probably, I'll understandMath too».

Finally, the results showed a large variety of internal factors interacting with each other in a dynamic manner. They ranged from arousal of curiosity and optimaldegree of challenge to feelings of competence, awareness of developing skillsandmastery in chosen areas to affective states, such as positive attitudes and confidence. Very few respondents stated external factors.

Experiment

CLIL lessons on the school base. we couldn't use special programs during topic explanation, because classrooms weren't equipped with interactive boards. Despite this, due to explanation of Mathematics in English, we noticed students' interests. However the main aim was to explain Mathematics, with the usage of English language, enlarging the interest and explaining the content. That was why we must use interactive board. Therefore we decided with students and classroom-teachers to conduct next lessons in the base of educational center «Dostyk». Because the classrooms of «Dostyk» are lighted and are equipped with interactive boards, chairs and desks are comfortable. These external factors are also render influence on students' moods.

A quadratic function, how to draw graph of a quadratic function, solving a quadratic equation by factoringwere explained. The translations of used terms according to the topicwere explained, and during the lesson always explained the Kazakh translationsagain.

During explanation of lesson, even if it is a blackboard or interactive board, using varicolored chalks or pens is very effective and useful. Because it helps to teacher to explicate the important parts of the topic, it helps them for better learning the topic and they will understand on what it is necessary to pay attention.

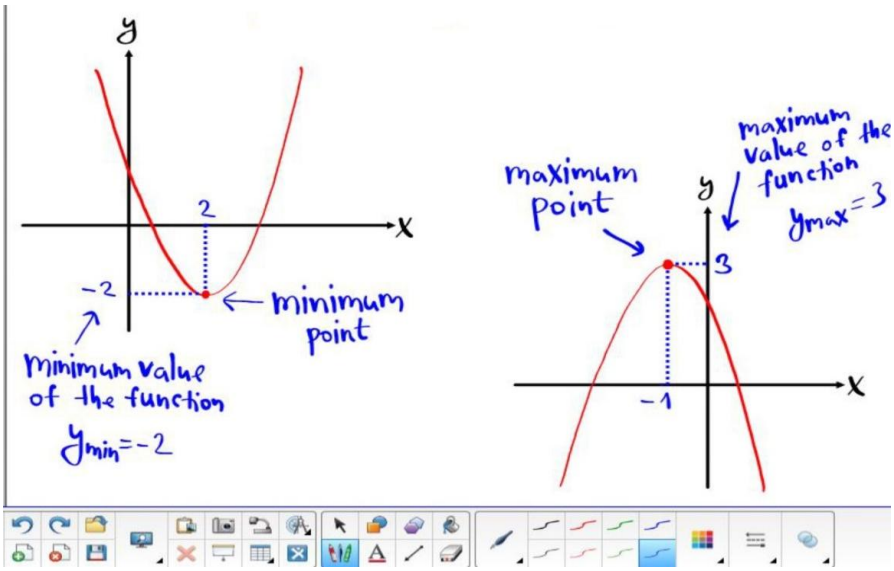


Fig.3. The graph of a quadratic function.

On the pictures below you can see the several fragments of the topic:

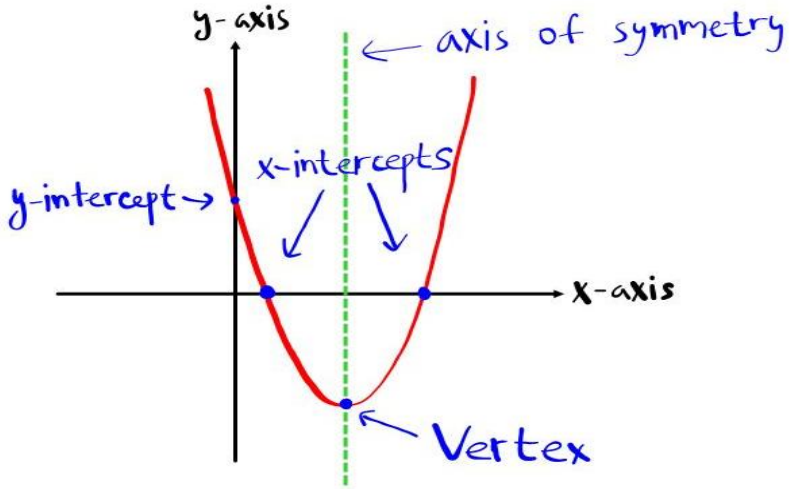


Fig. 4. Maximum and minimum values of quadratic functions.

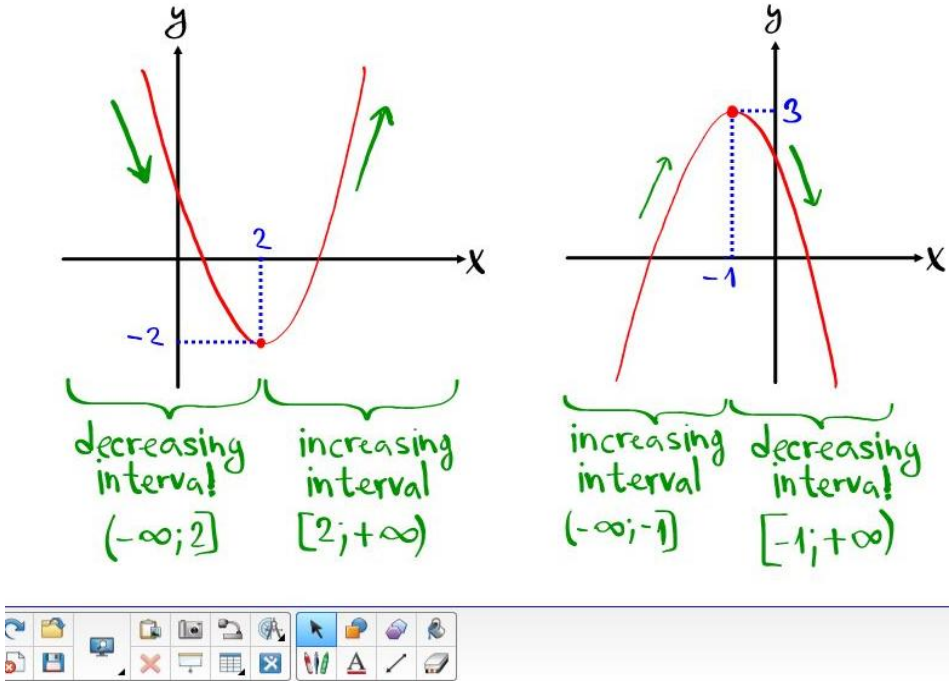


Fig. 5. Increasing and decreasing intervals of quadratic functions.

Whichever the topic is in mathematics we should compile order and algorithm of solving the task with students. To solve the task with the

algorithm helps students to understand the topic better. It teaches students to accuracyand concentration. The student will knowhow he/she solves the task. For instance, we identify 4 steps to draw a graph of standard quadratic function $y = ax^2 + bx + c.$ These are:

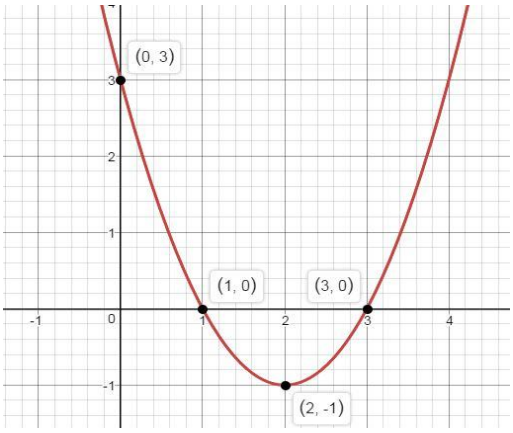
STEP 1: Find the $\text{Vertex}(x_0; y_0),$ where $x_0 = -\frac{b}{2a}$ and $y_0 = f(x_0).$
STEP 2: Find the y-intercept. To find the y-intercept let $x = 0$ and solve for y.
STEP 3:Find the x-intercepts. To find the x-intercepts let $y = 0$ and solve for x.
STEP 4:Graph the parabola using the points in steps 1 – 3.

The program Desmos Graphing Calculatorwas used. Firstly, students drew the graph according to the above said algorithm, thenthe correctness of the graph with this program waschecked. By using DesmosGraphing Calculator they are quickly able to check that they've done it correctly because they can see that the graphed parabola passes through the points they have found in step 1-3.

Table 7

The process of drawing a graph of a function $y = x^2 - 4x + 3.$

STEP 1: Find the $\text{Vertex}(x_0; y_0)$	$x_0 = -\frac{b}{2a} = -\frac{(-4)}{2 \cdot 1} = 2$ $y_0 = f(x_0) = 2^2 - 4 \cdot 2 + 3 = -1$ $\text{Vertex}(2; -1)$
STEP 2: Find the y-intercept. To find the y-intercept let $x = 0$ and solve for y.	$x = 0$ $y = 0^2 - 4 \cdot 0 + 3 = 3$ y-intercept $(0; 3)$

STEP 3:Find the x-intercepts. To find the x-intercepts let $y=0$ and solve for x.	$y=0$ $0=x^2-4x+3=(x-1)(x-3)$ $x=1,\ x=3$ x-intercepts $(1;0)$ and $(3;0)$
STEP 4:Graph the parabola using the points in steps 1 – 3.	

This level of precision and the ability to easily zoom allow students to check their work; doing so on paper would not be easy for students with visual issues who typically struggle with algebraic manipulation.

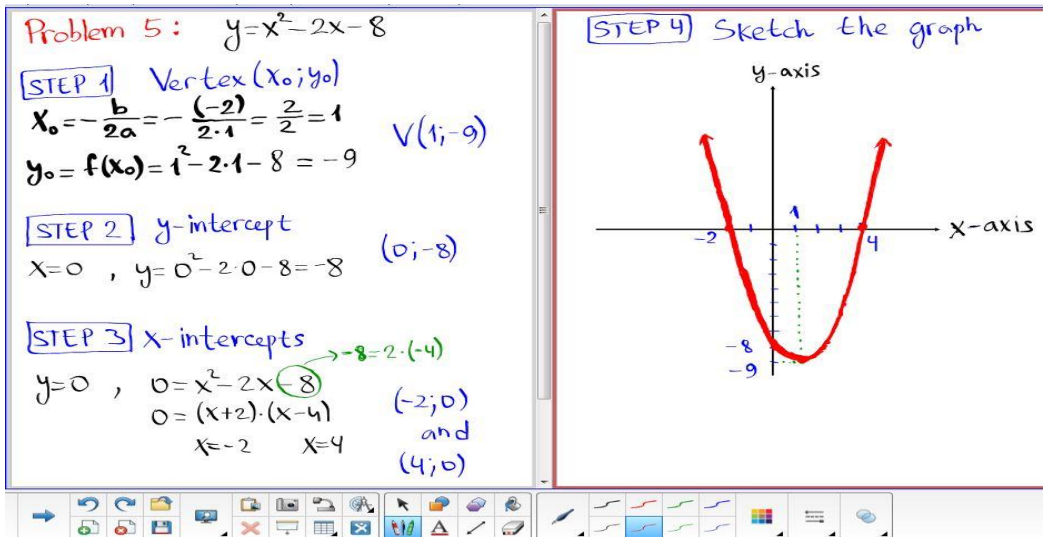


Fig.6. The process of drawing a graph of a function on ainteractive board.

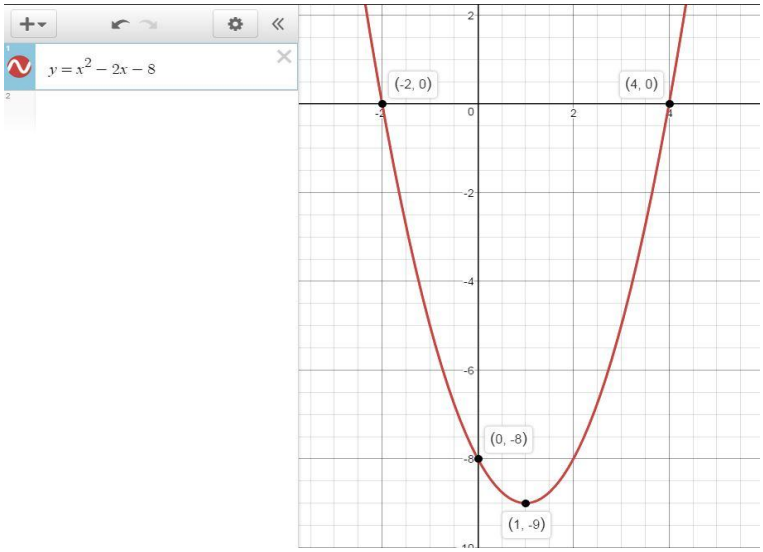


Fig. 7. The process of checking a solution on a Desmos Graphing Calculator.

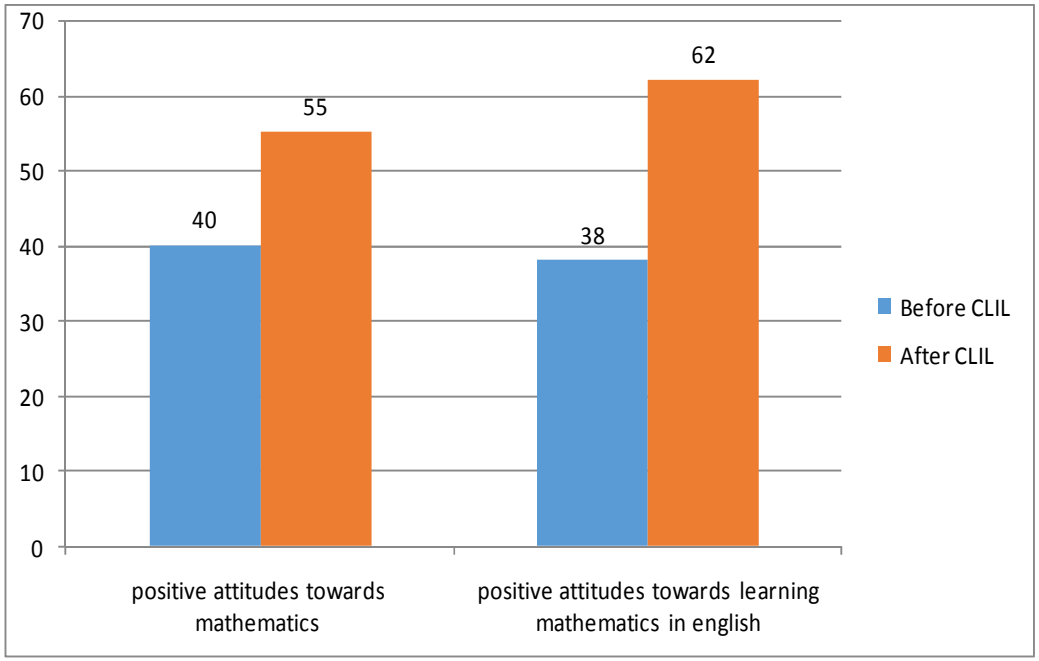
Results of investigation

In order to check the results, we decided to administer post questionnaire. Its aim was to confirm or refute the data gained before. Post questionnaire consisted of a single multiple choice question. The studentswere asked to tick off one or more answers from the given options which were structured in order to cover both external and internal factors.

Table 8

Post questionnaire

What do you think about Maths taught in English?
It's interesting to have the Math in English
My interest to Math has increased
My interest to English language has increased
I have learned new words
It's helpful to speak in English fluently
The lessons should be taught in Kazakh language
The misunderstand parts should be explained in Kazakh language
The lesson should be taught in English language only
I didn't understand because the lesson was in English



It's uninteresting to have Math in English

Fig.7. The students' attitudes towards Mathematics taught in English.

Results of questionnaires before and after applying CLIL are shown in the following figure.

The bar chart illustrates the students' attitudes towards Mathematics taught in English.

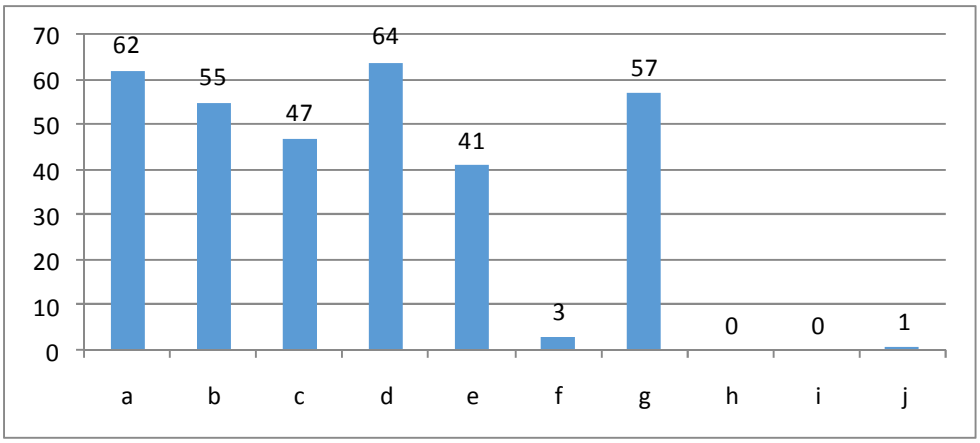


Fig.8. A comparison bar chart of students' attitudes towards Mathematics and Mathematics taught in English before and after applying CLIL method.

By this short-term researchwas proved that the CLIL method is able to make teaching Mathematics attractive even for those who disliked it in the past. It produces more efficient teaching results and draws higher attention of all pupils in the class. They became more motivated to learn something new and even difficult because they found this new method attractive. This was the result of the combination of interactive educational tools and foreign languages teaching.

References

1 Harmer, J. The Practice of English Language Teaching. - Longman, 1989.

2 De Corte, E. Marrying theory building and the improvement of school practice: a permanent challenge for instructional psychology // Learning and Instruction. – 2000. - № 10.- pp. 249-266.

3 Gardner, R.C. Social Psychology and Language Learning: The Role of Attitudes and Motivation. - Edward Arnold, 1985.

4 Hejný, M. Teóriavyučovaniamatematiky // Theory of teaching mathematics In Slovak. – Bratislava, 1990.

5 Williams, M., Burden, R.L. Psychology for Language Teachers. A Social Constructivist Approach. - Cambridge University Press, 1997.

IRSTI 20.51

G. Sabituly[1]*, A. Aubakirov*[1]
[1]Suleyman Demirel University
Almaty, Kazakhstan

FEATURES OF THE SMART BOARD IN INTERNET

Abstract. Smart technologies and interactive white boards become very popular tool in education last years. There are many advantages of using such device in the teaching, since it is more interesting for the students, helps to save the time and make the educational process more effective. One of the most important facilities of the interactive whiteboards is an immediate access to internet. In other words, the teacher get access to the huge base of knowledge, educational materials, movies and resources. In this article main facilities of using internet in interactive whiteboards are discussed. Special attention is paid to so-called virtual whiteboards that have been created for the distance education.

In addition, on a virtual board, as well as on its real counterpart, there is a possibility to write formulas, build various geometric shapes. With the help of special services, you can transfer graphic images and text files. Interactive